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National Health  
and Nutrition  
Examination Survey

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DIETARY  
INTERVIEWERS  
PROCEDURES  
MANUAL



January 1999  
(Revised January 2000)

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# **1. OVERVIEW OF THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY**

This chapter provides a general description of the health examination surveys conducted by the National Center for Health Statistics (NCHS) and the current National Health and Nutrition Examination Survey (NHANES). It also provides an overview of the tasks that staff perform during the survey.

## **1.1 History of the National Health and Nutrition Examination Programs**

This NHANES is the eighth in a series of national examination studies conducted in the United States since 1960.

The National Health Survey Act, passed in 1956, gave the legislative authorization for a continuing survey to provide current statistical data on the amount, distribution, and effects of illness and disability in the United States. In order to fulfill the purposes of this act, it was recognized that data collection would involve at least three sources: (1) the people themselves by direct interview; (2) clinical tests, measurements, and physical examinations on sample persons; and (3) places where persons received medical care such as hospitals, clinics, and doctors' offices.

To comply with the 1956 act, between 1960 and 1984, the National Center for Health Statistics (NCHS), a branch of the U.S. Public Health Service in the U.S. Department of Health and Human Services, has conducted seven separate examination surveys to collect interview and physical examination data.

The first three national health examination surveys were conducted in the 1960s:

1. 1960-62 – National Health Examination Survey I (NHES I)
2. 1963-65 – National Health Examination Survey II (NHES II)
3. 1966-70 – National Health Examination Survey III (NHES III)

NHES I focused on selected chronic disease of adults aged 18-79. NHES II and NHES III focused on the growth and development of children. The NHES II sample included children aged 6-11,

while NHES III focused on youths aged 12-17. All three surveys had an approximate sample size of 7,500 individuals.

Beginning in 1970 a new emphasis was introduced. The study of nutrition and its relationship to health status had become increasingly important as researchers began to discover links between dietary habits and disease. In response to this concern, under a directive from the Secretary of the Department of Health, Education and Welfare, the National Nutrition Surveillance System was instituted by NCHS. The purpose of this system was to measure the nutritional status of the U.S. population and monitor nutritional changes over time. A special task force recommended that a continuing surveillance system include clinical observation and professional assessment as well as the recording of dietary intake patterns. Thus, the National Nutrition Surveillance System was combined with the National Health Examination Survey to form the National Health and Nutrition Examination Survey (NHANES). Four surveys of this type have been conducted since 1970:

1. 1971-75 – National Health and Nutrition Examination Survey I (NHANES I)
2. 1976-80 – National Health and Nutrition Examination Survey II (NHANES II)
3. 1982-84 – Hispanic Health and Nutrition Examination Survey (HHANES)
4. 1988-94 – National Health and Nutrition Examination Survey (NHANES III)

NHANES I, the first cycle of the NHANES studies, was conducted between 1971 and 1975. This survey was based on a national sample of about 28,000 persons between the ages of 1-74. Extensive data on health and nutrition were collected by interview, physical examination, and a battery of clinical measurements and tests from all members of the sample.

NHANES II began in 1976 with the goal of interviewing and examining 28,000 persons between the ages of 6 months to 74 years. This survey was completed in 1980. To establish a baseline for assessing changes over time, data collection for NHANES II was made comparable to NHANES I. This means that in both surveys many of the same measurements were taken in the same way, on the same age segment of the U.S. population.

While the NHANES I and NHANES II studies provided extensive information about the health and nutritional status of the general U.S. population, comparable data were not available for many of the ethnic groups within the United States. Hispanic HANES (HHANES), conducted from 1982 to

1984, produced estimates of health and nutritional status for the three largest Hispanic subgroups in the United States—Mexican Americans, Cuban Americans, and Puerto Ricans—that were comparable to the estimates available for the general population. HHANES was similar in design to the previous HANES studies, interviewing and examining about 16,000 people in various regions across the country with large Hispanic populations.

NHANES III, conducted between 1988 and 1994, included about 40,000 people selected from households in 81 counties across the United States. As previously mentioned, the health status of minority groups is often different than the health status and characteristics of nonminority groups, so black Americans and Mexican Americans were selected in large proportions for NHANES III. Each group comprised 30 percent of the sample. NHANES III was the first survey to include infants as young as 2 months of age and to include adults with no upper age limit. To obtain generalizable estimates, infants and young children (1-5 years) and older persons (60+ years) were sampled at a higher rate than previously. NHANES III also placed an additional emphasis on the effects of the environment upon health. Data were gathered to measure levels of pesticide exposure, presence of certain trace elements in the blood, and amounts of carbon monoxide present in the blood. A home examination was incorporated for those persons who were unable or unwilling to come to the exam center but would agree to an abbreviated examination in their homes.

In addition to NHANES I, NHANES II, Hispanic HANES, and NHANES III, several other HANES projects have been underway since 1982. These projects have been a part of the HANES Epidemiologic Follow-up Survey, a multiphase survey conducting follow-up interviews with the NHANES I population in order to provide longitudinal data on the health of the U.S. population.

## **1.2 Overview of the Current NHANES**

This NHANES follows in the tradition of past NHANES surveys, continuing to be a keystone in providing critical information on the health and nutritional status of the U.S. population.

The major difference between the current NHANES and previous surveys is that NHANES is intended to become a **continuous annual survey**. NHANES is also linked to the National Health Interview Survey following the Survey Integration Plan proposed by DHHS. NHANES collects data from a representative sample of the U.S. population every year. This new design allows annual statistical

estimates for broad groups and specific race-ethnicity groups as well as flexibility in the content of the questionnaires and exam components. New technologic innovations in computer-assisted interviewing and data processing result in rapid and accurate data collection, data processing, and publication of results.

The number of people examined in a 12-month period will be about the same as in previous NHANES, about 5,000 randomly selected subjects a year from 15 different locations across the nation. The data from the NHANES are used by government agencies, state and community organizations, private researchers, consumer groups, companies, and health care providers.

### **1.2.1 NHANES Pilot and Dress Rehearsal**

During 1998 and 1999 two comprehensive tests were conducted in the Washington, DC area in preparation for the main study—a pretest and a dress rehearsal. In both tests, respondents were interviewed in their home and then asked to participate in a physical examination in the MEC. Data collected during the pretest and dress rehearsal are not included in the main survey database and no analyses were performed.

The pretest evaluated household interviewing procedures and MEC procedures, including the physical exams, the examination center interviews, the field office and exam center, and the Integrated Survey Information System (ISIS). The dress rehearsal was the final trial run for all survey procedures.

### **1.2.2 Data Collection for NHANES Main Survey**

Data collection on the NHANES main survey began early in 1999 and will continue for approximately 6 years at 88 locations (stands) across the United States. Each year approximately 7,000 individuals of all ages, in households across the United States, will be randomly selected to participate in the main survey. The study respondents include whites as well as an oversample of blacks and Mexican Americans. The study design also includes a representative sample of these groups by age, gender, and



income level. Adolescents and older persons will also be oversampled. The overall goals of data collection are to:

- Estimate the number and percentage of persons in the U.S. population and designated subgroups with selected diseases and risk factor;
- Monitor trends in the prevalence, awareness, treatment, and control of selected diseases;
- Monitor trends in risk behaviors and environmental exposure;
- Analyze risk factors for selected diseases;
- Study the relationships between diet, nutrition, and health; and
- Explore emerging public health issues and new technologies.

Randomly selected persons are invited to take part in the survey by first being interviewed in their homes. Household interview data are collected via computer-assisted personal interviewing (CAPI) and include demographic, socioeconomic, dietary, and health-related questions. Upon completion of the interview, respondents are asked to participate in a physical examination. The examination is conducted in a specially equipped and designed Mobile Examination Center (MEC), consisting of four trailers. The MEC houses the state-of-the-art exam equipment and is divided into rooms to assure the privacy of each study participant during the exams and interviews. The examination includes a physical and dental examination conducted by a physician and a dentist, laboratory tests, a variety of physical measurements, and other health interviews conducted by highly trained medical personnel.

Participants who are 50 years and older or less than 1 year old and are unable or unwilling to travel to the MEC will be offered a home examination administered by an examiner from the MEC. The household interviews and MEC exam combined will collect data in the following important health-related areas:

- Cardiovascular and respiratory disease;
- Vision;
- Hearing;
- Mental illness;
- Growth;

- Infectious diseases and immunization status in children;
- Obesity;
- Dietary intake and behavior;
- Nutritional status;
- Disability;
- Skin diseases;
- Environmental exposures;
- Physical fitness; and
- Other health-related topics.

### **1.3 Sample Selection**

A sample is defined as a representative part of a larger group. Since it is impossible to interview and examine everyone in the U.S. for NHANES, a representative sample is taken of the U.S. population. By studying a representative sample of the population, it is assumed that the findings would not have been too different had every person in the U.S. been studied. Because generalizations about the population will be made, it is extremely important that the sample be selected in a way that accurately represents the whole population. Statisticians calculate the size of the sample needed and take into consideration the geographic distribution and demographic characteristics of the population, such as age, gender, race, and income.

An introductory letter is sent to each household in the sample. A few weeks after the letter goes out, interviewers visit each listed household and use carefully designed screening procedures to determine whether any residents are eligible for the survey. If eligible residents are present, the interviewer then proceeds to introduce the study, presents the Sample Person (SP) a survey brochure, and obtains a signed consent for the household interview. The brochure contains detailed information on the survey, the household interview, and the MEC examination.

A signed consent form must be obtained from each eligible individual before the household interview can be conducted. A refusal to sign the consent form is considered a refusal to participate in the survey. After the interview is completed, the interviewer then explains the MEC exam, obtains another

signed consent form for the MEC exam, and contacts the field office to schedule a MEC appointment for the SP. All SPs aged 12 years and older must sign the Examination Consent forms to participate in the MEC examination. Parental consent is also required for SPs under 18 years of age. SPs aged 7-11 years old are asked to sign the Examination Assent Form. An additional consent form is required for consent to future general research for both adults (ages 18+) and parents of children under 18 years. This consent form gives permission to store a small sample of blood and urine for future specimen testing. A refusal to sign the MEC consent or assent form is considered a refusal to participate in the examination phase of the survey. Examinations will not be performed on sample persons who do not sign a consent form.

#### 1.4 Field Organization for NHANES

There are two levels of field organization for this study - the home office staff and the field staff.

- **Home Office Staff from Westat** – Project staff from Westat are responsible for overseeing the field teams and field work.
- **Field Staff** – The field staff consists of three groups of employees: Stand office staff, the interviewers, and the MEC staff.
  - **Stand Office Staff** – For the main survey, an office will be opened in every stand. Each stand office will include a study manager, an office manager (OM), a field manager (FM), three assistant office managers (AOMs), and a data manager (DM).

The **study manager** is responsible for the overall management of operations at a stand.

The **office manager** is responsible for the stand office operations and is the main conduit for the flow of work and information between the MEC and the household interviewing staff. S/he will supervise one or more local office clerks hired to assist with office activities.

The **field manager** has primary responsibility for the supervision of the household interviewers (health representatives).

The **assistant office managers** are primarily responsible for data entry into the Integrated Survey Information System (ISIS), editing data collection materials, and verification of interviewer work. They report to the office manager.

The **data manager** assists in the setup and testing of computer systems and telecommunications hookups in the field. S/he also coordinates the maintenance and repair of all field computer systems with the home office and external vendors and acts as the field “help desk” person.

- **Interviewers** – This staff is primarily responsible for identifying and enrolling the survey participants, conducting the household interviews, and appointing the study participants for the MEC exam. Specifically, interviewers will locate occupied residential dwelling units, administer the Screener to select eligible sample persons, obtain signed consents to the household interview, conduct the interviews, set up examination appointments, obtain consents for the MEC exam, conduct field reminders for MEC appointments, and assist in rescheduling broken, cancelled, and no-show appointments.

Several times a week, interviewers visit the stand office and report to the field manager. During the course of the study, interviewers also interact on a daily basis with other field office staff and home office staff.

- **MEC Staff** – This staff of health professionals conducts the health exams. The main study includes two exam teams.

There are 17 individuals on each traveling team: 1 MEC manager, 1 MEC coordinator, 1 licensed physician, 1 licensed dentist, 3 medical technologists, 4 health technicians, 2 MEC interviewers, 2 dietary interviewers, 1 phlebotomist, and 1 home examiner. In addition, local assistants are recruited, trained, and employed at each stand to assist the exam staff.

The following section describes the steps that are always completed prior to the opening of a stand and an overview of the tasks that interviewers are expected to perform. Highlighted items are basic concepts critical to the conduct of the study.

Steps completed prior to interviewing include:

- Statisticians scientifically select certain segments in the sampling area. A segment is an area with definite boundaries, such as a city block or group of blocks containing a cluster of households.
- Twelve weeks before data collection begins, NHANES staff list the segments. Listing is the systematic recording on special forms of the address of every dwelling unit (DU) located within the segment. Commercial buildings and other structures not intended as living quarters are not listed.
- A sample of dwelling units is selected from the listing forms. This sample is the group of addresses that interviewers visit in order to conduct interviews.

- Immediately before data collection begins, an advance letter is sent to each dwelling unit with a mailing address. This letter briefly describes the study and inform the household that an interviewer will contact them in the near future.

The tasks interviewers perform when they arrive at a stand include:

1. After the successful completion of training, interviewers are given an assignment of sampled dwelling units to contact. Each assignment consists of pre-labeled Household Folders, pre-labeled Neighbor Information Forms, and the appropriate Segment Folder.
2. Using addresses on the Household Folders and listing/mapping materials in the Segment Folder, interviewers locate these dwelling units.
3. If a selected address is not a dwelling unit or is not occupied, interviewers complete the "Vacant/Not a DU Section" on the Screener Non-Interview Form.
4. In an occupied residential dwelling unit, interviewers contact an adult who lives in the selected household and administer the Screener using a laptop computer.

The Screener is an interview that lists all the individuals who live in the household, divides the household into families, and collects all the demographic characteristics necessary to immediately determine if there are persons in the household eligible for further interviewing.

All instructions necessary to determine eligibility and to select sample persons (SPs) are programmed in the CAPI Screener.

5. If all persons in a household are ineligible, no further work is done with the case. When eligible household members are identified, interviewers continue to conduct all the necessary tasks associated with the case.
6. In eligible households, the interviewer obtains a signed interview consent form prior to completing the medical history and/or the family questionnaire.
7. Next, the appropriate medical history CAPI interview is administered to eligible respondents. The questions asked depend on the age of the SP.
8. In each household containing children aged 1-5, floor and window sill dust samples are obtained. These samples provide information on lead levels in the household environment.
9. A Family questionnaire is also administered to one adult family member from each eligible family in the household.
10. Next, an appointment is scheduled for each SP, coordinating the MEC schedule and the SP schedule.

11. Interviewers then obtain signed consent form(s) for each SP for the examination, call the field office to confirm the examination appointment(s), and give each SP an appointment slip.
12. If there is more than one eligible family in a household, this process is repeated with each additional family.
13. Interviewers record the result of each contact or attempted contact with the household on the Call Record located in the Household Folder.
14. Interviewers also support the survey by conducting field reminders prior to MEC appointments and reschedule broken, cancelled, or no-show MEC appointments.
15. If an interviewer is unable to complete any of the questionnaires or procedures for any SP, an SP Card is completed. This card documents the problems encountered in completing one or more tasks.
16. Interviewers check for missed DUs and/or structures when instructed to do so. If any are found, the Missed DU or Missed Structure Procedures is implemented and appropriate forms will be completed.
17. When an interview has been completed, interviewers edit their work, carefully reviewing all forms for completeness and legibility.
18. Interviewers report in person to the FM at the stand office for regularly scheduled conferences, usually every other day. During these conferences, interviewers discuss completed cases, discuss problems with incomplete cases, receive new case assignments, and report time, expenses, and production.
19. To insure the accuracy and completeness of the survey, all interviewer work is edited by the field office staff, and then validated by recontacting respondents. After this review, supervisors provide interviewers with feedback concerning the quality of the work.
20. At the end of each stand field period, interviewers return all interviewing materials to the supervisor.

## **1.5 Exams and Interviews in the Mobile Examination Center (MEC)**

Examinations and interviews are conducted in Mobile Examination Centers (MEC), which is composed of four specially equipped trailers. Each trailer is approximately 45 feet long and 10 feet wide. The trailers are set up side-by-side and connected by enclosed passageways. During the main survey, detachable truck tractors drive the trailers from one geographic location to another.

Exhibit 1-1 shows a floor plan for the MEC. The interior of the MEC is designed specifically for this survey. For example, the trailers are divided into specialized rooms to assure the privacy of each study participant during exams and interviews. Many customized features have been incorporated including an audiometry room that uses a soundproof booth, a wheelchair lift, and a wheelchair-accessible bathroom available to assist participants with mobility problems. Exhibit 1-2 shows the locations of the various exams within the MEC.

Exhibit 1-1. Floor plan of the MEC

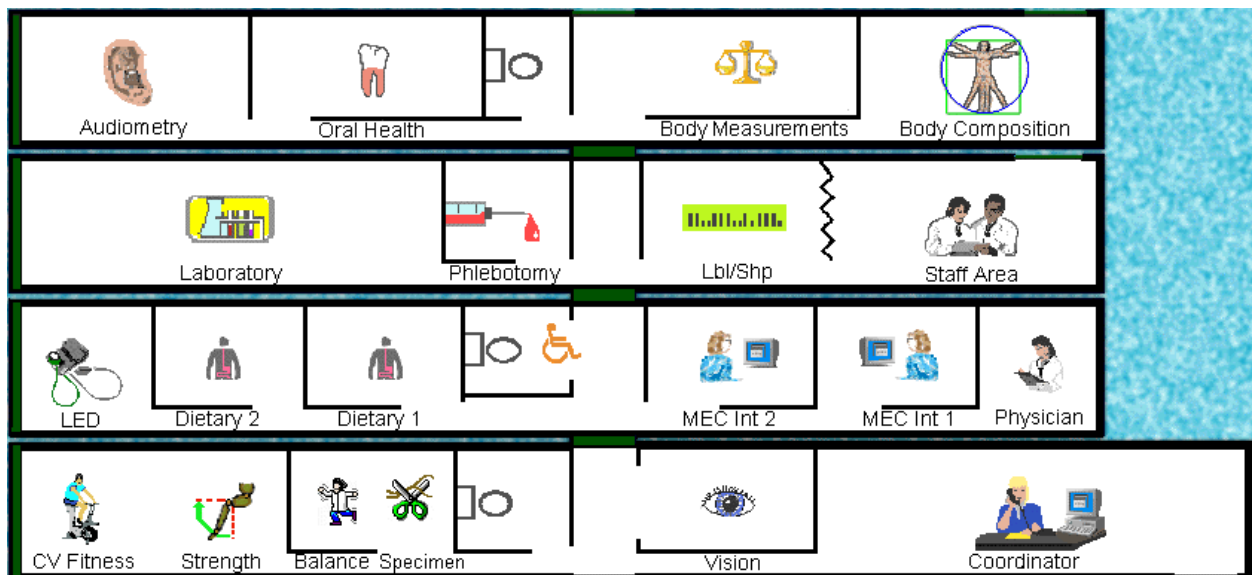


Exhibit 1-2. MEC exams and rooms

<u>Trailer</u>	<u>Room</u>	<u>Room Use</u>
Trailer 1	Reception area Vision room Balance/Specimen Collection Fitness	Welcoming and waiting area for SPs Vision tests Balance test, hair, and MRSA collection Cardiovascular fitness and muscle strength
Trailer 2	Physician MEC Interview MEC Interview Dietary Interview Dietary Interview Lower Extremity Disease	Physical examination Health interview Health interview Dietary interview Dietary interview Testing for lower extremity pulses and sensitivity
Trailer 3	Venipuncture Laboratory Label/shipping area Staff lounge	Drawing of blood samples Processing of urine and blood samples Lab area for labeling and shipping specimens Staff area that houses main computer system
Trailer 4	Total Body Composition Body measures Dental Audiometry/Tympanometry	Total body composition scans and bioimpedance Body measurements Dental exam Hearing tests

**Exam Sessions.** The MEC operates 5 days a week and includes weekday, evening, and weekend sessions. Two 4-hour sessions are scheduled each day with approximately 10 SPs per session. During a stand, work weeks rotate to offer a variety of MEC appointments on weekday mornings, afternoons, and evenings, and every weekend.

**Exam Team Responsibilities.** There are 17 individuals on each exam team. In addition, a local assistant will be hired to assist the staff in managing examinee flow. The duties of the exam team members are summarized below:

- One MEC manager supervises the exam staff, manages the facility, and supports exam operations.



- One coordinator directs the flow of SPs through the MEC examination process. The coordinator manages all SP appointments, verifies that all components are completed for each SP, and exits SPs from the MEC.
- One physician conducts the medical examination and records results, reviews the results of the complete blood count and pregnancy test, and serves as the safety officer for the MEC.
- One dentist conducts the dental exam and calls the results to a health technician who records the findings.
- Two health (MEC) interviewers administer questionnaires for physical and mental health information.
- Two dietary interviewers administer the dietary questionnaire. The interviewers record a 24-hour dietary recall of the types and amounts of foods consumed by the SP in the last 24 hours.
- Four certified radiologic technicians take and record body measurements, perform balance tests, vision tests, cardiovascular fitness tests, muscle strength assessments, lower extremity measures, total body composition (DEXA) scans, bioimpedance (BIA) tests, administer hearing tests, and collect hair and MRSA specimens. In addition, the technicians record findings for the dental examiner.
- Three medical technologists conduct clinical laboratory tests on biological and environmental specimens, record the results of the tests, and prepare and ship specimens to various laboratories.
- One phlebotomist administers the phlebotomy questionnaire draws blood from SPs, and recruits SPs for special studies.
- One home examiner performs home exams for SPs aged 50 years and older or under 1 year old who are unable or unwilling to travel to the MEC. The home exam lasts approximately 1 hour and includes the following:
  - Height;
  - Weight;
  - Skinfold measures;
  - Blood pressure;
  - Near vision;

- Blood samples and nasal (MRSA) swab collection; and
- Reproductive history for females.

The home examiner assists the MEC laboratory and phlebotomy staff when not performing home exams.

Each staff member is part of a team of professional persons with specific assignments that must be completed in order to accomplish the overall objective of the survey. Each individual must be aware of and respect the job demands placed upon other staff members, maintain an attitude of tolerance and consideration for fellow members of the team, and willingly perform extra tasks that may be assigned to support other staff members in the performance of their duties. MEC staff members may be requested to perform tasks not directly related to their specific professional skills in order to implement the overall data collection plan.

**Examination Components.** The full examination for an adult takes approximately 3½ hours, but the actual length depends on the SP's age. Some exams are done only on certain age groups so the exam profiles vary, even among adult SPs. The exam components are described briefly below and summarized in Exhibit 1-3:

- **Anthropometry**

The purpose of the anthropometry component is to provide: (1) nationally representative data on selected body measures, (2) estimates of the prevalence of overweight and obesity, (3) data to study the association between body measures and such health conditions and risk factors as cardiovascular disease, diabetes, hypertension, and activity and dietary patterns, and (4) data to monitor growth and development in children. A total of 11 body measurements are collected, but the number and type of measures varies with the age groups.

Exhibit 1-3. Examination components

Component	Ages
Anthropometry	All
Audiometry/Tympanometry	20-69
Balance	40+
BIA	8-49
Cardiovascular Fitness	12-49
Dietary Interview	All
Hair Collection	1-5 years, females 16-49
Muscle Strength	50+
Lower Extremity Disease	40+
MEC Interview	8+
Mental Health	8-19 years, 20-59 years (half-sample with audiometry)
MRSA sample collection	1+
Oral Health	2+
Physician Exam	All
Total Body Composition	8+
Urine Collection	6+
Venipuncture	1+
Vision	12+
VOC	20-59

■ **Balance**

Balance disorders, disequilibrium, and dizziness from vestibular disorders constitute a major public health problem. Primary disorders may be hidden by their consequences, such as falls, while subtle dysfunction may underlie difficulties in learning, writing, reading, and in everyday activities. The main objectives of the balance test are to obtain prevalence data, examine the relationship between balance disorders and other factors, and to characterize normal and disordered balance and spatial orientation. The standard Romberg test is used to measure postural sway.

■ **Bioelectrical Impedance Analysis (BIA)**

The purpose of the BIA exam is to monitor secular trends in overweight prevalence, describe the prevalence of obesity, and examine the relationship between overweight and obesity and other examination measures. BIA measures the electrical impedance of body tissues and is used to assess fluid volumes, total body water, body cell mass, and fat-free body mass.

- **Cardiovascular Fitness and Muscular Strength**

Evaluation of physical fitness provides nationally representative data on measures of physical fitness, estimate the prevalence of persons at risk due to sedentary habit and poor physical fitness, and provide data to study the relationship between leg strength, lower extremity function, and activity limitations. Cardiovascular fitness is assessed with a submaximal treadmill test on examinees aged 12 through 49 years. Lower body strength is assessed using a timed measured walk and isokinetic strength testing of the knee extensors and flexors in examinees aged 50 and older.

- **Dietary interview**

The goal of the dietary component is to estimate total intake of foods, food energy and nutrients, nonnutrient food components, and plain drinking water by the U.S. population; and assess dietary behaviors and the relationship of diet to health. Quantitative dietary intake data is obtained for all subjects by means of a 24-hour dietary recall interview using a computer-assisted dietary data entry system.

- **Hair collection**

The purpose of the hair component is to obtain a suitable biological sample that can be used for the determination of total mercury levels in hair. Approximately 100 strands are collected from SPs aged 1-5 years and women aged 16-49 years.

- **Hearing**

The goals of the hearing exam are to obtain normative data on the hearing status of the adult U.S. population, and to evaluate certain covariates that may be related to hearing loss, such as occupational exposure. The hearing component tests adults by performing pure tone audiometry and tympanometry. Because pure tone screening by itself may not be sensitive enough to detect middle ear disease, tympanometry is conducted to provide an estimate of tympanic membrane compliance.

- **Laboratory**

The laboratory component includes the collection and processing of various biological and environmental specimens including blood for subjects 1 year and older, urine for subjects 6 years and older. On-site pregnancy testing excludes pregnant women from other examination components such as DEXA, BIA, and cardiovascular fitness testing. Complete Blood Counts (CBCs) are also performed in the MEC laboratory. All other specimen testing is performed by Federal, private, and university-based laboratories under contract to NCHS.

- **Lower Extremity Disease (LED)**

The purpose of this component is to determine the prevalence of LED and its risk factors. Simple and reproducible measures of lower extremity arterial disease are obtained. Peripheral neuropathy is evaluated by measurement of cutaneous pressure sensation in the feet. Foot deformities permit the estimation of prevalence of those at high risk for the late-stage complications of LED.

- **MEC Interview**

The MEC Interview consists of questionnaire sections designed to obtain information on health behaviors, specific conditions, medical history, and risk factors. The information collected in the interview is intended to assist researchers in analyzing the data collected in the other examination components. The interview is administered to all age-eligible subjects, or a suitable proxy, using computer-assisted interviewing software.

- **Mental Health**

The mental health assessment is used to estimate the prevalence of selected disorders in the U.S. and to describe the degree of comorbidity between mental health disorders and other medical conditions and biological risk factors. Assessments are made during the MEC Interview using relevant portions of the Diagnostic Interview Schedule for Children (DISC) and the Composite International Diagnostic Interview (CIDI) for adults.

- **Methicillin-Resistant *S. Aureus* (MRSA) Sample Collection**

A nasal swab specimen collection for Methicillin-Resistant *Staphylococcus aureus* (*S. aureus*) is obtained on SPs aged 1+ years for the purpose of estimating the prevalence of MRSA in the population. Antimicrobial resistance to *S. aureus* has increased so dramatically, particularly in the hospital setting, that currently only one treatment option exists for this organism. NHANES is the first population-based prevalence study of MRSA. No other population-based studies or national surveillance efforts are available to provide reliable national estimates for this problem.

- **Oral Health**

This component monitors oral health status, risk factors for disease, and access to preventive and treatment services. The exam consists of a series of subcomponents which assess dentition and periodontal disease.

- **Physicians' Exam**

Blood pressure assessment and discussion of testing for sexually transmitted disease are the primary elements of the physician's exam. The purpose of assessment of blood pressure is to monitor prevalence and trends in major cardiovascular conditions and risk factors and to evaluate prevention and treatment programs targeting

cardiovascular disease. The physician discusses the purpose of STD testing and arranges for SPs to select a unique password with which to phone NCHS and obtain test results.

- **Total Body Composition**

This component is composed of the BIA and Dual Energy X-ray Absorptiometry (DEXA). The purpose of the DEXA scan is to gain insights into age, gender, and racial/ethnic differences in the skeleton relative to other measures of body composition such as total muscle and fat mass, as well as behavioral factors such as diet and activity. A total body scan using dual energy X-rays is performed to provide measures of bone mineral content, bone mineral density, muscle and fat mass.

- **Vision**

The vision examination consists of a near vision acuity test, a distance vision acuity test, an eyeglass prescription determination (when appropriate), and an automated refraction measurement. Information from the component may be used to estimate the prevalence of visual acuity impairment and distribution of refractive error in the U.S. population. Data are also used to evaluate screening strategies for visual impairment and eye disease, and evaluate functional impairment related to vision.

- **Volatile Organic Compounds (VOC)**

Information on levels of exposure to a selected group of volatile organic compounds is collected on a subsample of the survey population to assist in determining whether regulatory mechanisms are needed to reduce the levels of hazardous air pollutants to which the general population is exposed. Participants receive sampling badges to wear for 48 hours and return to the MEC with the badge for a second blood draw in 48-72 hours. An additional remuneration is paid for this test.

## **Second Exams**

Approximately 5 percent of SPs aged 12-69 who are examined in each stand are asked to return for a second MEC exam. Data from the second exam is used to obtain quality control data of survey procedures. The second exam components are similar, but modified versions of the original MEC exams. SPs who return for a second exam are included as a convenient VOC sample. Two additional VOC blood tubes are drawn and a questionnaire is administered. Also, not all components are repeated. Exams are generally conducted by the same examiner who obtained the first exam.

An additional 5 percent of SPs aged 2 and older are invited to repeat only the dietary interview, either in the MEC or by telephone.

SPs who return for second exams receive remuneration for their visit and transportation.

**Sample Person Remuneration.** All examinees receive remuneration for the MEC visit as well as payment for transportation expenses. The MEC visit remuneration is age-related and includes an extra incentive if the SP fasts prior to the exam. Additional, remuneration is offered for the VOC component, the home exam, and the second MEC exam.

**Report of Exam Findings.** Examinees receive the results of many of the tests and exams conducted in the MEC, though some results are used only for research and are not reported.

One report, a Preliminary Report of Findings, is produced for the SP on the day of their examination and includes results that are immediately available and require no further evaluation or interpretation. Just prior to the examinee's departure from the MEC, the coordinator prints a report that includes height, weight, and body mass index, complete blood count, blood pressure, and results from the audiometry, cardiovascular fitness, lower extremity disease, vision, and dental exams. The MEC physician reviews the blood pressure and complete blood count test results for abnormalities and discusses any problems with the SP (or their parent). The dentist also discusses the dental recommendations with the SP. Approximately 12-16 weeks after the exam, NCHS mails the remainder of the examination results to the SP after appropriate clinical or quality reviews are completed. Seriously abnormal results are reported to the SP via telephone by NCHS before the remaining findings are mailed.

Certain tests, such as those for sexually transmitted diseases (chlamydia, gonorrhea, syphilis, Herpes simplex 1 and 2, bacterial vaginosis, and Trichomoniasis) and human immunodeficiency virus (HIV) are released only to the sample person using a specially devised procedure requiring a unique password.

Tests and procedures conducted in the MEC are not considered diagnostic exams and are not a substitute for an evaluation by a medical professional. No clinical treatments or health interventions of any type are performed in the MEC. If a health problem is discovered during the course of the MEC exam, the physician offers to contact the examinee's personal healthcare provider or recommend a local physician or clinic for follow-up care. If a sample person is found to have a serious condition requiring immediate attention, the local rescue squad may be summoned or the SP will be advised to seek immediate medical treatment.

**Dry Run Day.** At the beginning of the examination period, one-half day is devoted to calibrating instruments, practicing MEC procedures, and collecting biological specimens that serve as blind quality control samples. A dry run day is scheduled immediately prior to the first exam day of every stand to make sure that all equipment is operational, supplies are adequate, and the facility is working properly. Any problems are corrected quickly before the “real” examinations begin. All procedures in the dry run are completed as though the actual exam session was being conducted. The only difference is that the examinees are actual volunteers who are not part of the sample for the survey. Volunteers may include local residents, local officials, or field employees or guests of NCHS.

## **1.6 Confidentiality and Professional Ethics**

All information regarding this study must be kept strictly confidential except as required by law. This includes location of survey sites. Since this study is being conducted under a contract with the National Center for Health Statistics, the privacy of all information collected is protected by two public laws: Section 308(d) of the Public Health Service Act (42 U.S.C.242m) and the Privacy Act of 1974 (5 U.S.C. 552a).

Each person working on the study must be continuously aware of the responsibility to safeguard the rights of all the individuals participating in the study. Each participant should be treated courteously, not as a sample number. Never divulge names or any other information about study participants except to the research team. Refrain from any discussions about study participants, in or out of the MEC, which might be overheard by people not on the survey staff. All of the members of the research team are under the same legal, moral, and ethical obligations to protect the privacy of the SPs participating in the survey. No participant names will be included in any reports prepared about the survey and neither NCHS nor the contractor is allowed to release information that would identify study participants without the consent of the participants.

Cooperation from the public is essential to the success of survey research. A great deal of effort is expended in obtaining cooperation from many national, regional, state, and local officials and the general public. It is the responsibility of every field employee to build on the integrity of the survey to encourage continued access to study participants during current and future surveys. Professional conduct, both on and off the job, is extremely important.



Each staff member has a responsibility for promoting good public relations. The Public Health Service and the contractor will be judged by the actions of the staff both on and off duty; consequently staff must be discreet in speech and action. Personal appearance and behavior must be governed by these same considerations. Please be aware of the audience at all times and avoid statements or actions that could shed an unfavorable light on the survey.

Staff will be asked to sign a pledge of confidentiality before the survey begins. This pledge states that they are prohibited by law from disclosing any information while working on the survey to anyone except authorized staff of NCHS and the contractor, and that they agree to abide by the contractor's Assurance of Confidentiality.

## **2. THE DIETARY INTERVIEW**

### **2.1 Dietary Interview Component in the National Health and Nutrition Examination Survey**

Dietary information has been collected in NHANES since the 1970s. Researchers and policymakers rely on NHANES data for detailed information about the foods and beverages that are consumed by the U.S. population. In addition to providing important national reference data on food and nutrient intakes that are obtained on all survey participants, the data help us to learn about food patterns of ethnic subgroups, the adequacy of diets consumed by young children and older persons, and the contribution of food to total nutrient intakes. Total nutrient intakes from food and dietary supplements can be computed by combining NHANES dietary recall data with household interview dietary supplement information. Many federal agencies use NHANES data to evaluate federal regulations in the areas of food fortification and human risk assessment analyses that are used to measure human exposure to contaminants that are found in food. All of these monitoring and research applications are dependent on the quality and completeness of the dietary interview data.

The dietary interview has always been a core component of the NHANES and all examinees are eligible for the interview. In the current survey, the dietary interview is conducted in the NHANES mobile examination center (MEC) and is comprised of two parts, the 24-hour recall and a short set of post-dietary recall questions. Other related data are collected in the household interview. These dietary behavior and food security status assessment data include questions on dietary practices, participation in food assistance programs, infant feeding practices, type of home water supply, history of anemia, height and weight history, lifestyle eating habits, vitamin/mineral supplement and antacid usage, household food sufficiency, and food security status. In addition to the dietary assessment, the NHANES nutritional assessment components include anthropometric and body composition measurements, nutritional biochemistry and hematology tests, clinical examinations, and physical fitness and physical functioning assessments. The dietary assessment components of the survey were planned by a team of researchers from NCHS and several other government agencies. While the survey was being planned, government agencies were invited to submit research proposals for topics and interview questions that would meet their specific nutrition information needs. The dietary interview system and questionnaire specifications that NCHS provided to Westat reflect these information needs. NCHS and Westat staff will have primary responsibility for monitoring the quality of data that are obtained during the course of the survey.

In 1998, NCHS signed a Memorandum of Understanding (MOU) with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) to integrate the resources of the two agencies to collect national dietary intake data. NCHS and ARS will collaborate on dietary survey data collection methodology, data processing, and data reporting. This is an important goal of the Ten-Year Plan for the National Nutrition Monitoring and Related Research Program. When these plans are finalized, changes will be incorporated into the current versions of NHANES instruments and training materials.

## **2.2 The Role of the Dietary Interviewer**

The dietary interviewer will be responsible for administering the 24-hour recall interview with all Sample Persons (SPs). The information will be collected and recorded in an automated dietary recall system. In collecting the data for NHANES, the dietary interviewer will be the liaison between the respondent and the dietary coding system.

The primary goal of the 24-hour recall is to collect a detailed list of all the foods and beverages the SP consumed within a 24-hour period, time and place of consumption, name of meal or snack, and details needed for accurate food coding. Food models will be used to aid respondents in estimating amount of intake. The dietary interviewer establishes a rapport with the respondent, obtains the most accurate, objective, and complete data, and enters these data into the automated system. Throughout the interview, it is important that the dietary interviewer maintain his/her professionalism, while creating an environment in which the SP feels comfortable to respond freely.

The 24-hour dietary recall interview is comprised of two parts, the 24-hour recall and a short set of post-dietary recall questions. Information collected from the 24-hour recall interview will be coded and linked to a database of nutrient composition of foods. Calculations of total daily intakes of energy and 51 dietary components, including 19 individual fatty acids will be derived from these data. Following the dietary recall, the second part of the dietary interview will consist of a short questionnaire. Questions will be asked about intake of plain drinking water during the previous 24-hour time period, frequency of fish and shellfish consumption, and individual food security status (according to screening criteria on income level and household food security status). Children aged 1-11 years will be asked questions about their recent health. Information obtained from the dietary interview will be used for describing the nutrient and

food intakes of the population and for studying the relationship between diet, nutritional status, and health.

The dietary interviewer may conduct the interview in English or Spanish. Proxy interviews will be conducted for children less than 6 years old and other SPs who cannot report for themselves because of age or disability. Children who are 6-11 years old will be asked to provide their own data assisted by an adult household member. The preferred proxy is the person responsible for preparing the SP's meals.

<b>Age of SP</b>	<b>Main Respondent</b>
Under 6 Yrs	Proxy
6 Yrs to 11 Yrs	SP, with Proxy Assistant
12 Yrs +	SP*

\*Proxy is used if necessary

Beginning in late 1999, a 10 percent sample of examinees has been asked to complete a second dietary recall interview. The second interview is usually scheduled at least 4 to 10 days after the initial MEC exam.

### **2.3 Other Duties of the Dietary Interviewer**

The dietary interviewer has responsibilities in addition to administering the dietary recall interview. These responsibilities are listed below.

**Inventory measuring aids at the beginning and end of a stand.** You must take inventory of your measuring aids before beginning the stand and when you are packing up at the end of the stand.

**Unpack and pack supplies at the beginning and end of a stand.** All supplies should be packed into boxes at the end of a stand in preparation for moving the MEC. You are responsible for unpacking supplies prior to the start of a stand in a new area.

**Check supplies at the start of each exam session.** You must make sure that you have all the materials needed to conduct interviews for that day. You should plan to get to the MEC 20 minutes early to check your materials. If you notice that you are missing supplies, inform the MEC manager.

**Assist other exam staff members.** If you have time, you may be asked to help with packing and unpacking equipment for other components, as well as other tasks.

**Adhere to the travel schedule.** Westat will provide you with a travel schedule for each stand. You are expected to follow this schedule.

It is important to remember that each member of the MEC team is hired to perform certain tasks. The workload and hours will vary per component. Since your responsibilities are very different from other team members, it is best to fulfill your tasks without making comparisons to the workload of other team members with different responsibilities.

## **2.4 Observers and MEC Visitors**

NCHS and Westat staff will conduct the quality control monitoring and data review activities for the component. The home office will receive data transmittals on a continuous basis throughout the survey. Electronic mail systems will be set up to provide daily communication between the field staff, home office, and NCHS. Representatives from NCHS and Westat will visit survey locations to talk to the survey staff, observe examinations and interviews, and monitor the examination protocols and time requirements.

During the course of the survey there will also be scheduled visits by collaborators and contract staff who are involved with various components of the survey. Collaborators from other government agencies including the U.S. Department of Agriculture (USDA), the Environmental Protection Agency (EPA), the National Institutes of Health (NIH), and the Food and Drug Administration (FDA) may schedule visits to the MEC (through Westat) and request meetings with the dietary interviewers. You will be notified in advance of any visits by outside groups. Generally speaking, collaborators are interested in learning how the survey “works.” For example, they may ask how survey participants respond to a dietary recall interview and if they are able to remember what they ate the day before. Some researchers are interested in a particular aspect of dietary methodology such as estimating

food portion sizes while others are interested in how particular questions are being answered because they may want to use the same (or similar) instrument in another survey or plan to analyze the data. Interviewers should speak from their own experiences, offering what they have observed while collecting the information rather than offering opinions as to the importance or relevance of the information. If the visitors have specific questions you are not able to answer, they should be referred to NCHS.

Additionally, researchers and teaching staff from local health departments, universities, and community colleges may visit the MECs and arrange to meet with members of the examination team. The appointments with outside groups, that is, nonresearch collaborators, are usually scheduled when the MEC is not in session. Sometimes this is done on the “Dry Run” (practice) day or between examination sessions. In the interest of maintaining the confidentiality and privacy of survey participants, visits by non-government or Westat staff are scheduled during “off” hours.

MEC visitors often ask the dietary interviewers about their work. For instance, the exam teams travel frequently, move to unfamiliar communities, encounter many new faces every day, and so forth. Visitors are curious about your education and interviewer training, bilingual language skills, and why you chose to be a member of the team. You may be asked about other exam components. If you are knowledgeable about these components, it is acceptable to discuss them; otherwise, refer the individuals to the MEC manager or another member of the MEC team. Visitors may ask about the dietary interview system that you use to record the dietary recall information. You may be asked to describe the screens and the approach used to record information. A brief description of the interview format, data entry, the food probe screens, data entry fields, online food and brand lists, and data editing is useful. Copies of training manuals, a list of the measurement aids that are used, and other specific information about the component can be requested through NCHS. If someone requests a hard copy of a screen, it is best to provide them with a copy of some “sample screens” that were used in the dietary training manual. Never share papers with SP information! The survey has strict confidentiality rules.

**Chapter 3**  
**Integrated Survey Information System**  
**(ISIS)**














## MEC Subsystem Overview




July 14, 2000



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# MEC Network & Coordinator Overview

## Network Overview

The illustration below depicts how the MEC subsystems are connected to the FO and HO to supply the SP data necessary to conduct the multitude of examinations. The Field Office manages the Interview Teams that conduct the footwork of identifying and gathering detailed data on prospective SPs and transmits the information to the FO and HO for processing. This information is stored in databases and retrieved by the MEC subsystems in preparation for examinations. The results of FO surveys and MEC examinations are collected, analyzed, and prepared for dissemination for public, research, and examination participants in various forms.

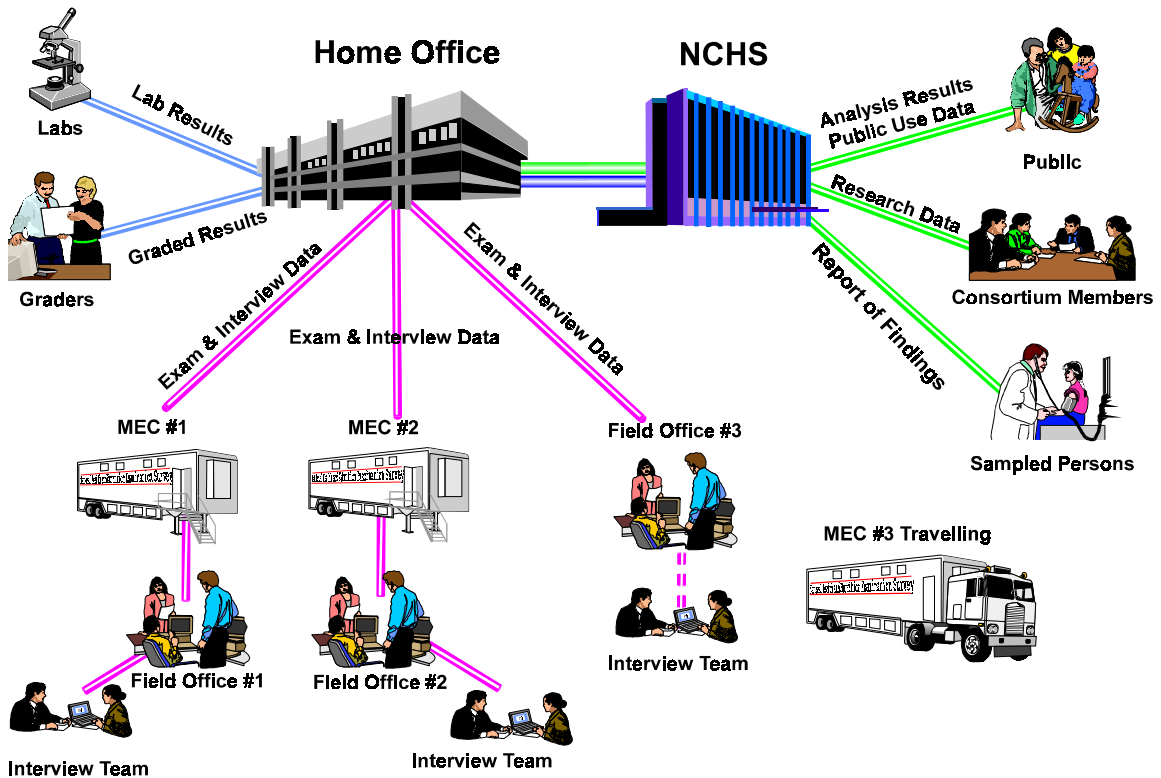


Figure 1: NHANES Network Connectivity

Each ISIS workstation is an integral component of a sophisticated network that links the MEC workstations together with utility and database servers and the Home Office. Continual status communications between the workstations and the Coordinator station enable orchestration of activities and personnel flow.

A simplified Intranet schematic is illustrated below:

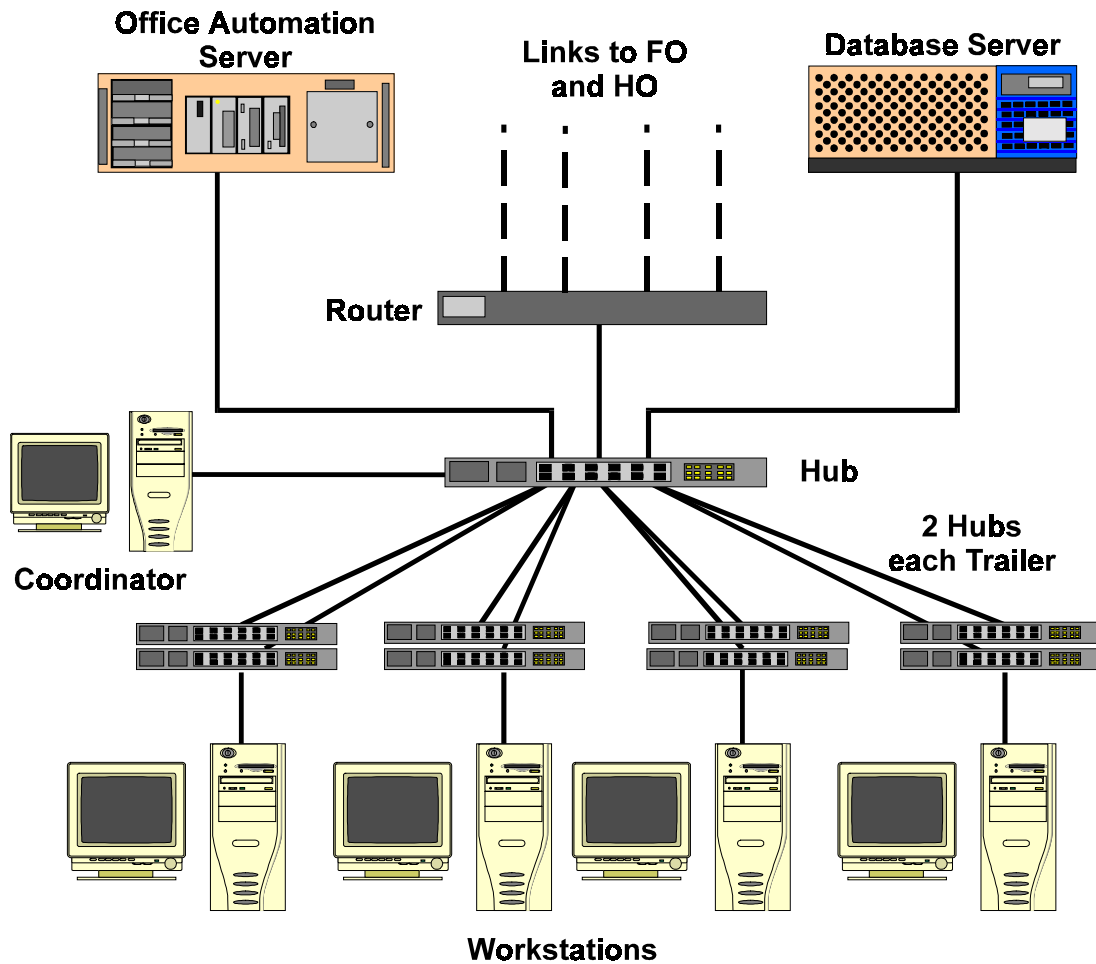


Figure 2: Network Connectivity Scheme

Each workstation connects to both the office automation server (NT Server) and the database server (Sybase) through a series of hubs. These hubs connect the servers and workstations (operating on Windows NT) within the MEC trailers to form part of the ISIS system. The MEC network communicates with both the Field Office (FO) and Home Office (HO) using primary and backup data links. The data links synchronize operational activities and transfer examination and other data as scheduled.

### MEC Coordinator

The MEC Coordinator subsystem is designed to efficiently orchestrate the flow of Sample Persons (SPs) throughout the MEC examination process. Continual interaction between each workstation and the Coordinator enables smooth passing of SPs from one workstation to another. Each component examination program automatically transmits the status of the examination to the Coordinator to assist in synchronizing the next component assignment. Exams cannot be performed without specific assignment of a technician and an SP.

The MEC Coordinator subsystem receives appointments scheduled by the Field Office's Appointment Management subsystem. The Coordinator subsystem determines the appropriate examination program, called a 'profile', based on gender and age at the time of the Household Interview.



During the conduct of the session operations, the Coordinator subsystem provides a graphical representation of the location of SPs in the MEC, the status of exam components, the availability of examiners, and the availability of exam stations.

### The Coordinator Screen Configuration

The Coordinator station is the nerve center for the MEC. All functions of the Coordinator are executed with the graphical interface designed to assign, monitor, and manage all activities within the MEC. The Coordinator screen, illustrated below, is organized into three major panes and a menu bar:

The screenshot shows the 'Coordinator Console' window. The top menu bar includes 'File', 'Reports', 'Utilities', 'Window', and 'Help'. Below the menu bar is a status bar showing 'Coordinator Console: Stand:807 Session:807591 30-Dec-1998 08:30 am - 12:30 pm'. The main area is divided into three panes:

- SP Exam Profile and Monitoring:** A table with columns for SP Name, Status, Ref, G, Age, LB, MD, PH, BM, OH, DR, MI, VI, LE, MS, AU, BA, HR, BC, CV, TB, VT. It lists 10 SPs including Monroe, Jeff; Scilio, Jennifer; Parker, Henry; Jones, Jon; Jones, Kathy; Adams, Jane; Adams, Kile; Niley, Cindy; Niley, Jack; Harrison, Keith; Harrison, Tammy; and Woods, Janet.
- MEC Examination Rooms Layout:** A grid of examination rooms such as 'Audiometry', 'Oral Health', 'Body Measures', 'Laboratory', 'Phlebotomy', 'Lbl/Shp', 'Staff Area', 'LED', 'Dietary 2', 'Dietary 1', 'CV Fitness', 'Strength', 'Balance', 'Hair', 'Vision', 'Coordinator', and 'Howard S.'.
- Examiner & Technician List:** A list of staff members and their skills, including McGrew J. (Asst. Coordinator), Stitt M. (Dietitian), Slesinsky M. (Dietary Interview), Stanford D. (Dietary Interview), Braddock I. (Health Tech), Kuczarski (Health Tech), Mitchell D. (Health Tech), Ostchega A. (Health Tech), Smith C. (Health Tech), Arroyo D. (Lab Tech), Friend S. (Lab Tech), Lorigan R. (Lab Tech), Hernandez (MEC Interviewer), Lawson F. (MEC Interviewer), O'Dea D. (MEC Manager), Edwards P. (Phlebotomist), and Dolan B. (Physician).

Figure 3: The Coordinator Screen

The Menu Bar provides access to options detailed in the following section.

The SP Exam Profile and Monitoring pane displays each SP exam profile, current status, and examination progress. (The actual screen shows all 10 scheduled SPs). The Examination Profile pane is designed to assist the Coordinator to rapidly assess the availability of examination components against the required examination profiles for each SP, and to manage the movement of SPs and staff.

The MEC Examination Rooms Layout visually portrays the floor plan of the MEC, availability of each examination room, assigned examiner and technician, the location of SPs, and examination status for each room.

The Examiner and Technician List shows available examiners and technicians along with their status.

### **Assigning an SP to an Exam**

After check-in and after completion of individual examinations, the MEC Coordinator assigns the SP to new components. Assignments are based on a list of the SP's remaining required exams, available examiners, and available exam components.

Examiners are notified by a system-generated message when an SP is assigned to their component. When the examination is complete, the Coordinator system advises the examiner of the SP's next component for the SP.

### **System Blocking and Exclusions**

Specified examinations are “blocked” or excluded for SP assignment or continuation of an examination due to medical, SP non-consent, or safety considerations. Some examinations become “unblocked” when medical conditions are verified, such as a negative pregnancy test result from the lab.



# MEC Work3station

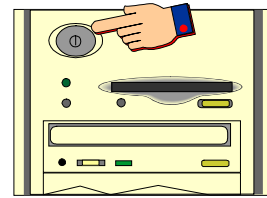
## Workstation Startup

The workstation startup procedures are rarely necessary since the workstations will remain powered and running the Windows 95 operating systems for the stand duration. However, at times the workstation must be completely shutdown and restarted to resolve connectivity and other operating issues.

In the event that you must startup a workstation, follow these simple procedures:

### **To Startup the Workstation:**

- Locate and press the power button as shown on the right;
- Then turn on the monitor.



### **To Turn On the Monitor:**

- Locate and press the power button as shown.
- A small green light located near the power button will light if the monitor's power line is connected.



## The MEC Desktop

After workstation startup, the MEC desktop appears. The desktop is specially tailored to support the specific MEC examination or station. An illustration of the desktop and components are shown below.

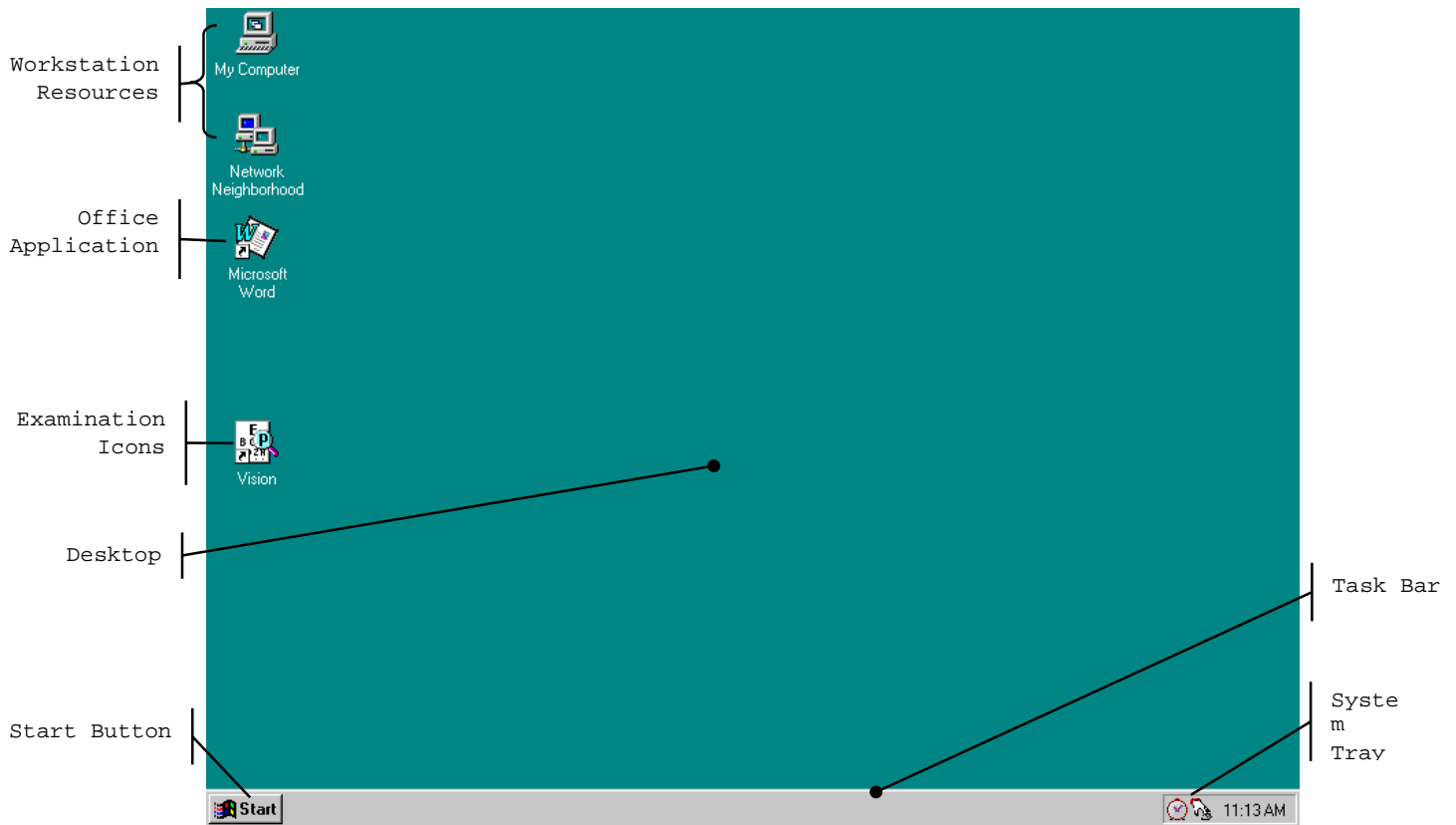


Figure 4: MEC Workstation Desktop

The desktop is similar to a real desktop, except perhaps a little neater. The desktop holds “shortcuts” to frequently used programs, such as the examination programs. Shortcuts are icons that represent a file or program located within the computer or network. The shortcuts provide a rapid means to open the program or file it represents. When an application opens, it displays on the desktop, as well as most other system activities.

Descriptions of the items that appear on all examination workstations are below.

The **Start** button, when clicked, displays a menu containing everything you need to begin using Windows. The menu options include:

- Shut Down** – Shut down menu options.
- Help** – Starts Windows 95 Help.
- Documents** – Displays a list of previously opened documents.
- Programs** – Displays a list of programs you can start.

The Start button menu expands as programs are added to the system. The graphic below illustrates how the MEC desktop menu expands.

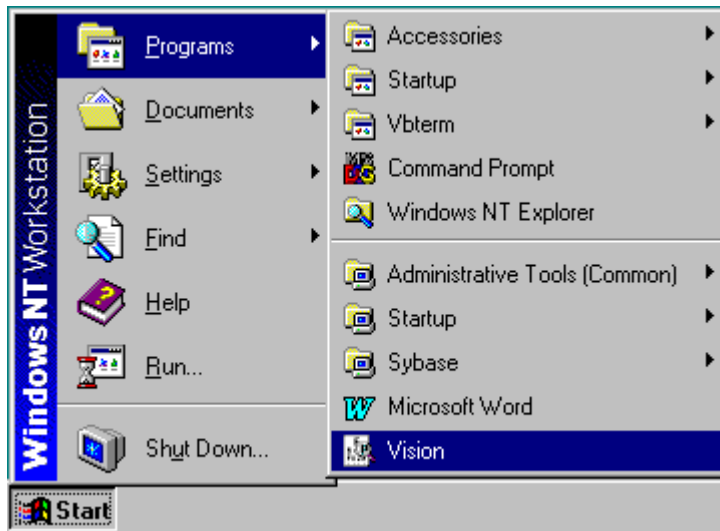





Figure 5: Start Button Menus

Note the highlighted selections. The menu expands when a small black arrow is shown on the menu's right margin. The main Start menu, the menu with the Windows 95 banner on the first menu's left margin, is set by the development team. You may be asking yourself "Where is all the *fun* stuff?" The Explorer and many other Windows functions are disabled to discourage any modifications to the desktop, Start menus, and files. Inadvertent moving or deletions of files could and would cause havoc.

**My Computer** icon views and manages your files. Double-clicking the icon will open a window view of your computer  connected resources.

**Network Neighborhood**  provides a view of all available resources on the network.

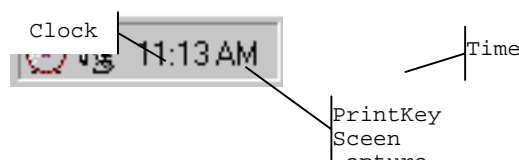
**Examination Program** icons (with shortcuts indicators) reside on the desktop to easily start an examination . Each examination has its own tailored icon. Double-click on the icon to open the examination program.



The **Taskbar**, located at the bottom of the Desktop, displays the Start button on the left side and the System Tray on the right side of the bar. By default, the system tray displays the current time and shows special system icons for programs that run in the background. The Physician button, shown to the right of the Start button, indicates the Physician examination component is currently running. Programs running but **minimized** are also shown as a button on the Taskbar.

### The System Tray Icons

The **System Tray** holds icons that represent the programs for displaying time and a screen capture utility.



The PrintKey screen capture utility operates automatically in the background. This feature enables you to capture items for documentation and database or program error messages. See *Appendix A, Using PrintKey*, for directions on how this feature can help you.

### Right Mouse Button Menus

The right mouse button provides a short menu of common actions when clicked on a desktop icon, the desktop itself, or System Tray icons. The Task Bar menu is disabled.

The right mouse menu for the **Desktop Icons** appears as shown below:

**Open** will open the program or file with associated application.

**Send To** provides an option to send the selected program or file to either the A:\ drive (floppy) or Mail.

**Cut** removes the icon from the desktop and places it on the system clipboard.

**Copy** places the contents of the clipboard to the desktop.

**Create Shortcut** makes another Shortcut on the desktop.

**Delete** permanently removes the selected item.

**Rename** highlights the items name for editing.

**Properties** displays information on the application the icon represents and shows the path and working area of the actual application.

The right mouse menu for the **Desktop** appears when right-clicked anywhere on the desktop, as shown below:

**Arrange Icons** provides options to display the icons.

**Line up Icons** automatically rearranges your desktop in a manner you will not like.

**Paste** places the contents of the clipboard onto the desktop.

**Paste Shortcut** creates a shortcut of the item in the clipboard on the desktop.

**Undo Copy** restores the clipboard of the last copied item.

**New** provides a menu of items from which you can create, such as a new folder or document.

**Properties** opens the Display Properties window to view and change several properties, such as window sound, and colors. Some, if not all properties, will be disabled to ensure consistent operation on MEC workstations.

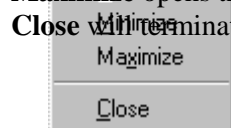
If the **System Tray** menu appears as shown on the left, you have clicked in the wrong area of the Task Bar.

**Restore Down** brings the program to the last used or default window size on the desktop.

**Minimize** reduces the program to an icon on the Task Bar. The Tray Utility program will reduce the connectivity applications back into the System Tray.

**Maximize** opens the program in a window that fills the screen.

**Close** will terminate the program.



Note: In the event you activate this menu from the System Tray, press the **ESC** key to escape the menu. *DO NOT select Close!* You will lose the background applications.

### End of Day Procedures

The current procedure is to leave your workstation operational when departing the MEC. Examinations are closed and the programs in the system tray left running.

There will be times when the system malfunctions, such as failure to respond to keyboard or mouse commands or “hangs”, you may be directed to shut down or restart the workstation.

#### **To Shut Down or Restart the Workstation:**

- Click on the **Start** button on the Taskbar.

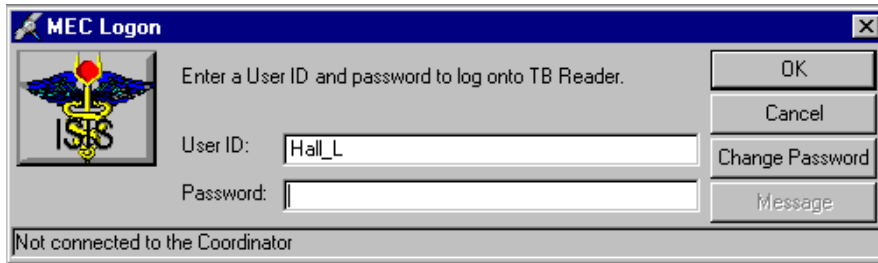
- Select **Shutdown** from the Start Menu.
- The dialog box, shown below, appears.
- To shut down the system completely, select *Shut down the computer*.
- Wait for the message indicating that it is safe to turn off the computer.
- To restart the system without shutting down, select *Restart the computer*.
- The system will restart automatically.



# MEC Exam Application's Common Features

MEC applications are custom built for each specific component but share a common design. This commonality provides all component applications the same “look and feel” which minimizes reorienting technicians that rotate from component to component. These features and characteristics are described below.

## Examiner Logon



There are currently several types of examiner logon procedures. The logon procedure for an examination component is determined by whether the examiner is *static* or *rotates* through other components throughout a session. Static examiners include components such as Physician, Phlebotomy, Dietary, and MEC Interviewers that remain logged on throughout the session. Health technicians, such as Vision and CV Fitness, are not assigned to rooms but rotate through several examination components. These technicians are required to logon and logoff for each examination. Other examinations, such as Dental and Body Measurements, have slightly different requirements and are addressed in their specific User's Manual. The two basic approaches to logon are outlined below.

### **Static Examiner Logon:**

- The logon screen, shown above, appears after the Coordinator assigns the examiner to the component and the assigned examiner starts the examination program.
- The **User ID** (Last Name\_First Initial) will automatically appear and cannot be changed.
- Type in the **Password** and press **OK**
- Examiner logoff is automatic at the end of the session.

### **Rotating Examiner Logon:**

- The logon screen appears when the Coordinator assigns an SP to an exam component.
- If the component involves both an examiner and a recorder, the examiner logon screens appear first, followed by the recorder logon screen.
- The **User IDs** will automatically appear and cannot be changed. Both exam technicians must logon.
- Type in the **Password**.
- Press **OK**.

- Logoff is automatic upon completion of the SP examination.

NOTE: Your password is your safeguard. All examination actions within the MEC are traced with the logon User ID and Password. Unauthorized entry and malicious actions to the ISIS system are prevented by a simple act of not ever, for any reason, give your password to another. You could jeopardize much more than study data.

After entering your password and prior to pressing **OK**, you can **change your password** by clicking on the **Change Password** button. The Change Password dialog box appears.

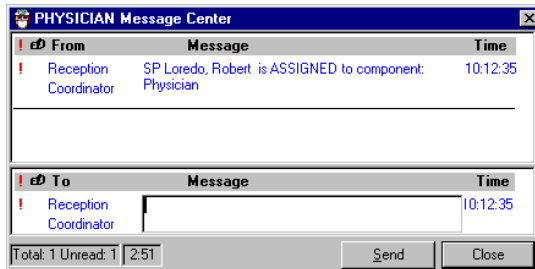
Enter your current password for access verification, followed by your new password. Confirm your new password and press **OK**.



Figure 6: Change Password Dialog Box

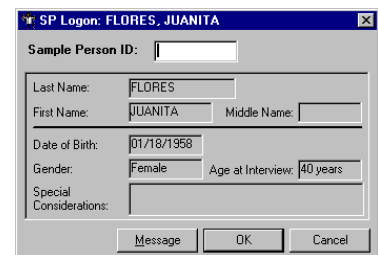
## SP Logon

The MEC Coordinator checks-in each SP upon arrival and assigns the SP to an initial examination component. The action of assigning the SP to a component automatically triggers a message from the Coordinator to alert the technician that an SP is assigned.



When the examiner selects *File / Open* to begin the exam, the SP logon screen appears.

- Acquire the SP ID through the wand device or manually enter the ID imprinted on the SP bracelet.
- Verify that the SP information is correct.
- Click **OK** to proceed with the examination.
- The **Message** button opens a dialog box for sending a message to the Coordinator.
- **Cancel** stops the logon process.



## Examination Screen Overview

The first examination screen appears after an SP is logged in or an existing record is opened. This example screen, shown on the next page and compressed for space, displays the basic visual appearance and design used throughout all MEC components.

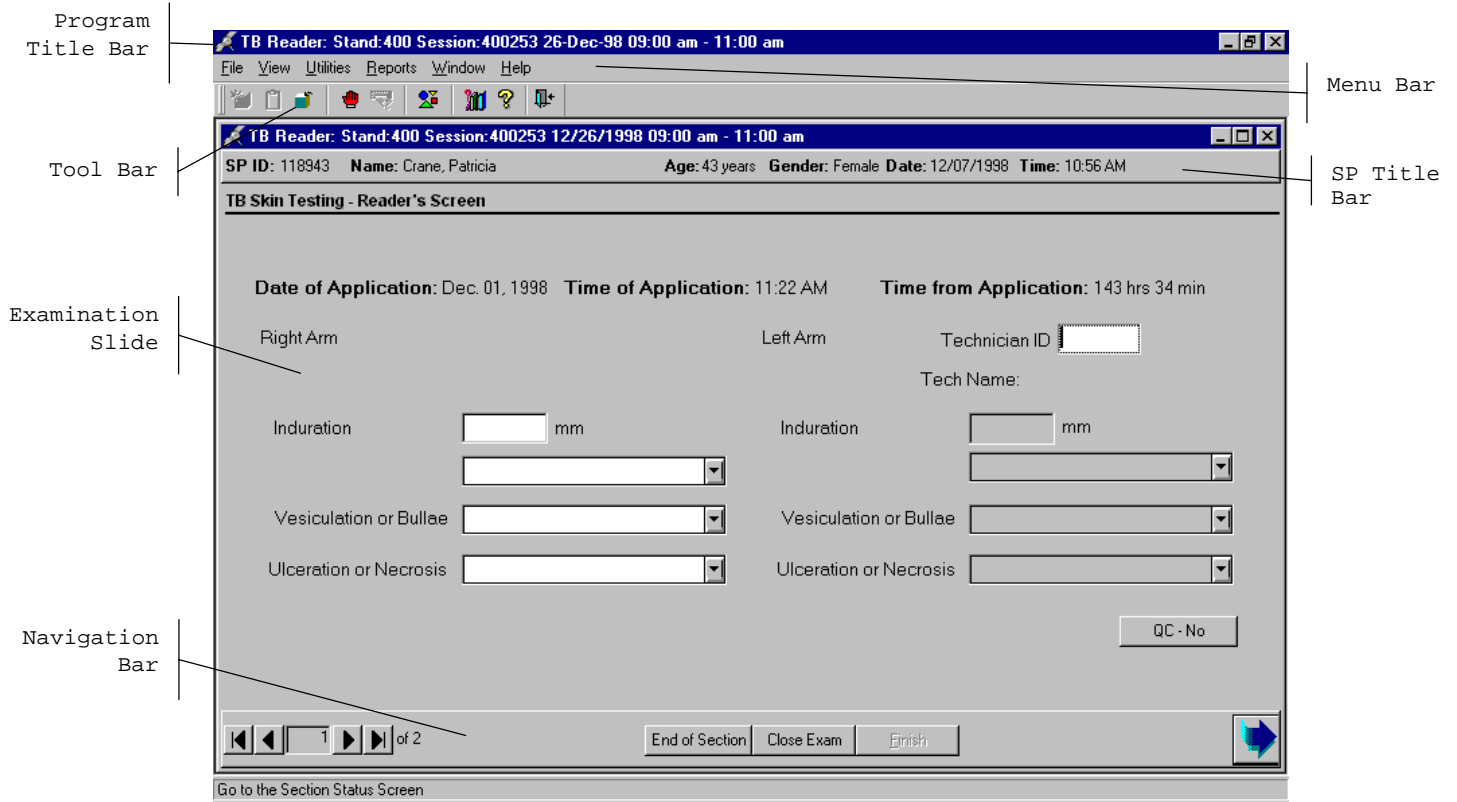


Figure 7: Sample Examination Screen

**Program Title Bar** shows the component program title, stand, session, and date time information.

**Menu Bar** displays the commands, functions, options, and information available during an examination.

**Tool Bars** hold buttons that execute common commands and other actions available in the menu bar. Buttons that are dimmed are not available.

**SP Title Bar** displays SP information during the course of the examination.

**Examination Slide** captures the measurements and other information.

**Navigation Bar** is used to move forward or back in the examination and displays the examination's relative location.

**Microhelp and Status Bar** displays the status of the computer, completion percentage message to the coordinator, and other information triggered by events.

### Menu Bar Options

Each MEC application has tailored menu options to support the specific examination. The menu options below list all available options. The options marked with an asterisk appear on all MEC examination programs. Options are grayed (inverted) or not present when they are not available for your subsystem.

Note the underlined letters in both the Menu and Menu Option. These underlined letters, used in conjunction with the **Alt** key, provide keyboard access to the menu selection without using the mouse. For example, pressing **Alt+F+O** will open a file. The **Ctrl+keystroke**, such as **Ctrl+O** , will also open a file.

Asterisks (\*) denotes menu options common to all MEC examination components.

<b>File*</b>	
<u>O</u> pen * <i>Ctrl+O</i>	Opens a new, Partial, or Not Done SP exam; must be assigned by Coordinator if not in standalone mode
<u>R</u> eview	Opens any existing SP examination in read-only mode; Coordinator assignment not required; no status updates sent to the coordinator system in Review mode
<u>C</u> lose *	Closes the current examination
<u>P</u> rint * <i>Ctrl+P</i>	Prints the current examination screen or report. Note the Ctrl+P shortcut keys.
<u>D</u> elete *	Deletes current exam and any associated references. Used primarily to delete an examination that clearly is in error, such as the wrong SP. Only enabled if it is a new exam and the status is not done or partial.
<u>E</u> xit *	Exits the application.
<b>View *</b>	
<u>F</u> irst *	Returns examination screen to first slide
<u>N</u> ext *	Advances to next examination slide.
<u>P</u> rior *	Displays previous slide IN THE SKIP PATTERN
<u>L</u> ast *	Advances to last slide.
<b>Utilities *</b>	
<u>Q</u> uality Control <i>Ctrl+Q</i>	Opens the quality control dialog box to initiate quality control procedures.
Exam <u>P</u> ause *	Used in case of an emergency in the MEC, such as an ill SP. Pauses the exam temporarily to stop the exam timer (in NH_Exam); sends "Exam paused" message to Coordinator.
Send <u>M</u> essage * <i>Ctrl+M</i>	Opens a dialog box to send messages to the coordinator.
Observation*	Submits an observation to the Physician for possible referral.
IC Exclude	Posts an exclusion record for those SPs who do not want HIV, STD, Genetic Testing , or Future Research performed; available only for

	Coordinator, Physician, & Phlebotomy.
<u>S</u> ettings *	Allows user to view or modify subsystem settings, including the Coordinator connection. <i>Modifying setting requires approval by the data manager.</i>
<u>T</u> oolbars*	Configures placement of toolbars.
<u>E</u> nglish <i>Ctrl+E</i>	Toggle option to set exam language to English.
<u>S</u> panish <i>Ctrl+S</i>	Toggle option to set exam language to Spanish.

### Reports\*

<u>S</u> ession Preview*	Lists all SPs in current session
<u>R</u> oom Log* <i>Ctrl+R</i>	Lists the SPs who have completed the component, including appt/exam and component status

### Window\*

<u>C</u> ascade *	Displays multiple windows overlapped and slightly offset as to show the title bar of each open window.
<u>T</u> ile <u>H</u> orizontal*	Displays open windows on top of each other and sized to fit all in the main program window.
<u>T</u> ile <u>V</u> ertical *	Displays open windows next to each and sized to fit in the main program window.
<u>L</u> ayer *	Displays open windows stacked over each other.
<u>M</u> inimize All Windows *	Reduces all windows to a button in the lower portion of the main program window.

### Help\*

<u>H</u> elp Topics * <i>F1</i>	Displays ISIS system help contents.
<u>N</u> HANES Procedures *	Displays component procedures manual. (not in Pilot).
<u>O</u> MB Statement.	Displays the OMB Confidentiality Statement.
<u>A</u> bout *	Displays the About dialog box.

## Tool Bars

Tools Bar buttons display when the program first opens to provide an easy way to access menu commands. Buttons are dimmed to signify that the action is temporarily unavailable; such as a dimmed **Print** button when no examination is open.



The Tool Bars, labeled FrameBar and FrameBar2, are customizable through the *System | Customize Tool Bars...* menu option or the Arrange Toolbars button. The Tool Bars buttons are:



Opens a New Sample Person Examination.



Opens an Existing Sample Person Examination.



Prints the Current SP Examination.



Arranges toolbar buttons.



Modifies system configuration and settings.



Sends message to coordinator.



Quits the Exam Application.



Performs Quality Control Procedures.



Pauses the current SP examination.



Logs an Emergency for the Current SP.



Enters a Referral for the Current SP.



Displays NHANES Procedures.



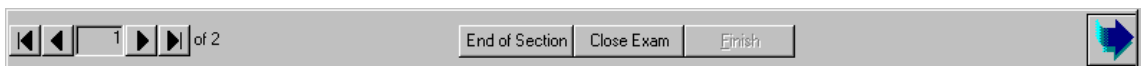
Displays program Help.

### SP Title Bar








The Title Bar appears with the first examination slide after the SP is logged on. The Title Bar remains visible throughout the examination process. The example above illustrates the actual information displayed, but is not as compressed along the bar.

### Exam Slide Navigation



The slide navigation bar provides a means to move forward and back through an examination. The features of this bar are:

-  View **first** slide in examination sequence. Disabled (dimmed) if current slide is first in examination sequence.
-  View **previous** slide in examination sequence. Disabled (dimmed) if current slide is first in examination sequence.
-  View **next** slide in examination sequence. Disabled (dimmed) if current slide is last slide in examination sequence.
-  View **last** slide in examination sequence. Disabled (dimmed) if current slide is last slide in examination sequence.
-  View **next** slide in examination sequence. An easy to click button.

Note the slide counter between the previous and next slide buttons. This counter aids in determining your current location in the slideshow sequence.

**End of Section** button advances the examination slide to the status slide for the current section or the end of the examination for single section examinations.

**Close** button interrupts the examination and displays the Status screen for an appropriate status code and comment.

**Finish** button is disabled (dimmed) until the examination is complete. Partial and Not Done examinations require a status code and comment to activate the Finish button. The action completes the current examination.

## Quality Control

Several examinations incorporate medical equipment that requires periodic maintenance and inspection. These components have detailed procedures on conducting their specific inspection checks. Each subsystem notifies the examiner that QC inspections have not been performed when the examination program is started.

An example Quality Control window is shown below.

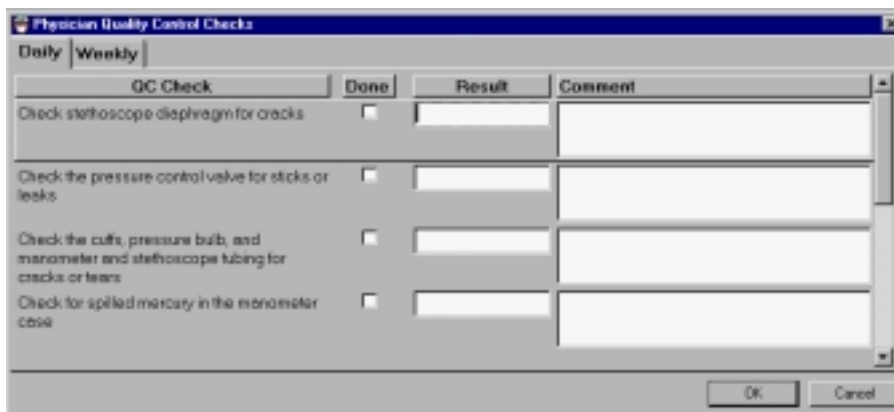


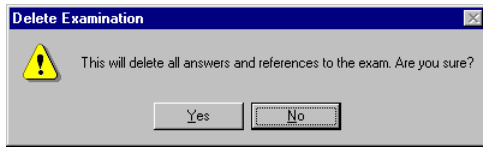
Figure 8: Quality Control Screen Sample

Included in the QC Checks are mandatory checks that must be completed prior to starting the examination program. The types of QC Checks are listed:

1. Start of Stand.
2. Start of Session.

3. Daily.
4. Weekly.
5. Middle of Stand.
6. End of Stand.

## Warning and Error Messages

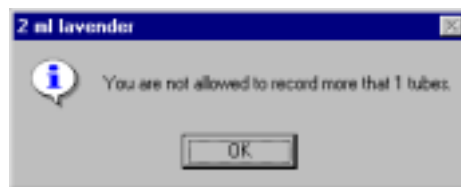


Throughout the course of an examination, warning and error messages may appear when you attempt to perform an action the program can not execute or requires your confirmation to continue the action. The message normally appears with statements explaining the error condition. Complying with the error message statement will normally remedy the error. When required to confirm an action, such as deleting records, be sure the action is necessary because in most cases the action is irreversible. Most “Oh #@%&” comments result from responding “Yes” when “No” was appropriate.

Data entry fields may have limitations on the acceptable range of values. The limitations imposed on these values are called **Hard** and **Soft Edits**.

**Hard edits** impose a strict limitation on values entered in a data field. A data value entered outside of the hard edit range is not accepted and a program warning displays. For example, if a vision hard edit limitation is 20/500, an entry of 20/520 will not be accepted.

**Soft edits** are flexible limitations on values but prompts you for confirmation if a value exceeds the limit. For example, if a vision soft edit limitation is 20/400, an entry of 20/435 will prompt a confirmation dialog box.



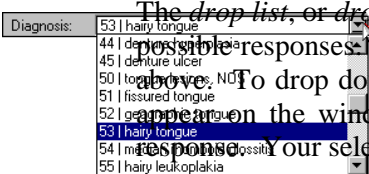
## Buttons and Boxes and Lists

The examination slides use a variety of methods to capture acquired data. The methods include the following data control devices.

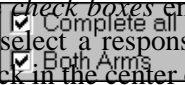
The **radio buttons** require a single response out of the responses displayed. The responses are mutually exclusive. To select a response, simply click on the appropriate button. The selected button will appear with a black dot in the center of the circle.



The **drop list, or drop-down list**, provides a rapid means of selecting a desired response from a fixed set of possible responses. The drop-down list window may initially appear blank, as shown in the top example above. To drop down the list of possible responses, click on the down arrow button. A scroll bar may appear on the windows right side to enable you to scroll down the list. Click to select the desired response. Your selection will appear in the upper list window.



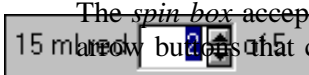
The **check boxes** enable selection to all responses that apply. The responses are not mutually exclusive. To select a response, simply click on the appropriate box. The selected box will appear with a black check in the center of the box. Click on a selected box to deselect.



The **ellipsis button** indicates additional action is available, such as browsing for records or additional information.



The **spin box** accepts a limited set of discrete responses. The “spin” name is derived from the up-down arrow buttons that can be used to “spin” the set of responses up or down. To select a response, simply

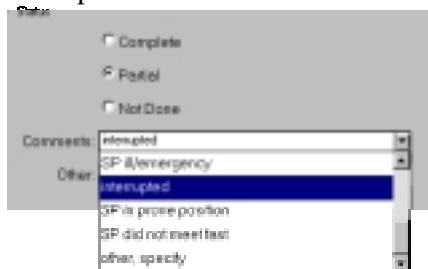




click on the appropriate up or down arrow button to increment the responses. You may also type the response value in the spin window, if known.

## Section or Component Status

The Section or Component Status screen displays the relative completion of the examination – **Complete**, **Partial**, or **Not Complete**. This is the last exam slide at the end of a section or a component if there are multiple sections. The status automatically displays and is not editable. Interruptions, emergencies, refusals, and other events that prematurely stop the examination will trigger this screen for appropriate incomplete comment codes. **Comments are not recorded for Complete examinations.**



### **Comment codes:**

Component status codes indicate the degree of component examination completion. The three standard codes are:

- Complete:** All sections of the component were completed or attempted.
- Partial:** At least one section of the component was not completed or attempted.
- Not Done:** No part of the component was done or attempted.

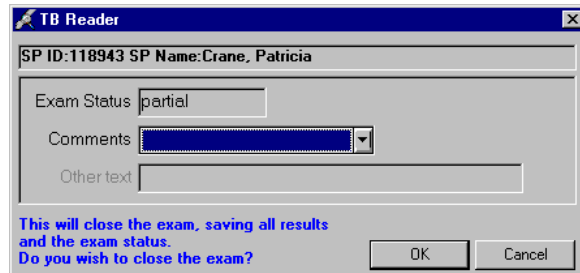
**Comment codes** are used to explain Partial complete or Not Done status codes. The Comment Codes defined below are common to all exams. There are other specific components and sections comment codes which are not defined here.

- Safety Exclusion:** The examinee was excluded from the component for safety reasons as defined by the protocol for the component.
- SP Refusal:** This is an SP initiated response due to refusal. The SP refuses the component for any reason other than an illness or emergency. If the SP refuses in the reception area, the Coordinator can code the exam. If the SP refuses after starting the exam, the examiner will code the refusal.
- No Time:** The SP comes on time and stays for the entire session, there is adequate staff in the MEC but at the end of the session there is no time to do the examination.
- Physical Limitations:** SP is unable to have the test due to physical problems. For example, the SP is unable to lie flat for the total body composition scan.
- Communication Problems:** SP is unable to understand and follow the instructions for the component due to language, cognitive impairment or other problem, and is unable to complete the test.
- Equipment Failure:** The component equipment malfunctioned and the test could not be performed on the SP.
- SP Ill/Emergency:** The SP became ill or an emergency occurred and the test was not performed on the SP.
- Interrupted:** An exam is interrupted, usually for a MEC-wide emergency, and cannot be

completed by the SP.

**Other, specify:** If the above reason for a Status Code of Partial or Not Done is not explained by one of the above Comment Codes, the examiner must choose Other, specify and record a comment in the text field.

Examinations closed prior to completion are automatically assigned a **Partial** status and the examiner is prompted for an appropriate comment.



SP ID:118943 SP Name:Crane, Patricia

Exam Status: partial

Comments: [Drop-down menu]

Other text: [Text field]

This will close the exam, saving all results and the exam status.  
Do you wish to close the exam?

OK Cancel

Select the comment from the **Comments** drop-down list and press **OK**.

## The Messaging Subsystem

The Messaging subsystem is the communication nerve center that continually informs the Coordinator on the status of each component examination progress, assigned examiner(s), components available for SPs, and other management information.

Communication between the Coordinator and examination components is readily available through the **Utilities** menu or the Send Message button on the toolbar.



### **To Send a Message to the Coordinator:**

- Click on the **Send Message** button on the toolbar.
- Press *Ctrl+M* keystroke combination.

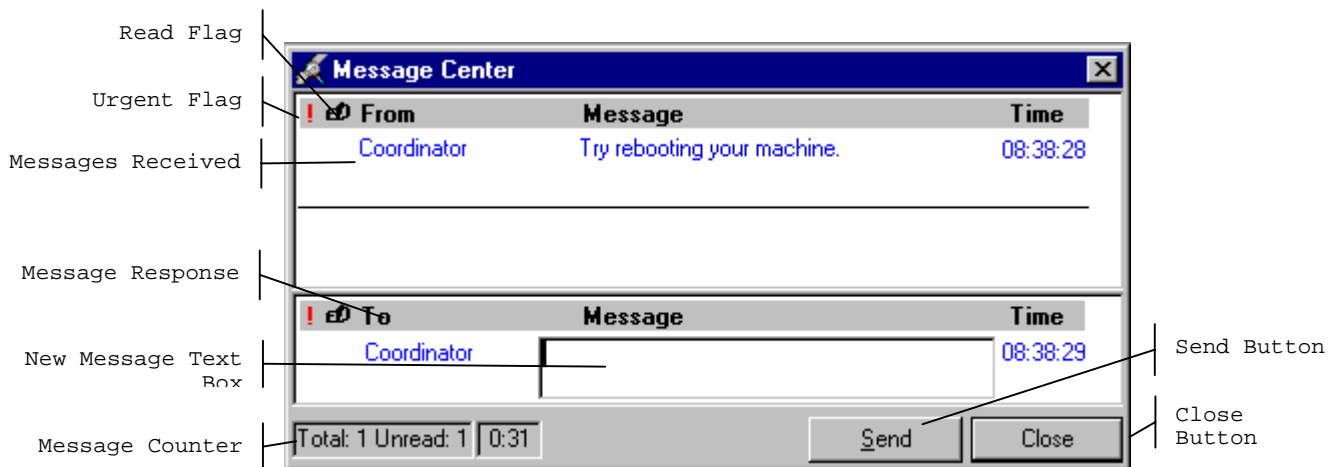
Or,

Or,

- Select **Send Message** from the Utilities menu.
- The Message Center transmittal box appears.

Messages sent to the Coordinator appear in the Message Center window on the Coordinator screen. Messages received from the Coordinator will remain visible on your screen for approximately 30 seconds.

Messages that have been flagged as “Read” (click the Read Flag column next to the read message) will be removed from the Messages Received pane during the system update, usually every 30 seconds.



- Received messages appear in the upper pane.
- Message responses are constructed in the lower pane.
- To respond to a message, select the message in the upper pane by clicking the “**Read**” flag.
- The Coordinator automatically appears in the “**To**” message response pane.

- Type your message in the **Message** text box.
- Click the **Send** button to send the message.
- Clicking the send button without including a text message automatically sends an “**Ok**”.
- Click the **Close** button to close the Message Center

# SAMPLE REPORTS

The Reports menu options include the Session Preview, Room Log, and Results reports. Most reports display on screen and all reports can be printed.

## To Print a Report

Default printers are designated for each workstation and cannot be changed with the examination program.

### To Print a Report or Window:

- Open the report.
- Select *File* | *Print* from the menu bar.

The report or print capable window is automatically sent to the default printer.

## Session Preview Report

This report can be viewed one day in advance. The report shows SPs scheduled for the scheduled sessions with special considerations and comments to notify the team in advance.

Session Preview Report							04/30/98 11:02
Stand:	551						
Session:	551574	04/25/98	08:30 - 12:30				
SP ID	SP Type	SP Name	Age	Gender	Special Considerations	Consent Comment	
791318		Tim Broughton	7 years	M			
734079		Zack Broughton	17 years	M			
602170		Kerry Broughton	35 years	F			
508340		Allen Broughton	46 years	M			
735805		Lydia Broughton	21 years	F			

Figure 9: Session Preview Report

## Room Log

The Room Log displays SPs that have completed the component and other comments.

Physician Room Log							04/30/98 11:02
<b>Stand:</b>	551						
<b>Session:</b>	551574	04/25/98	08:30 - 12:30				<b>Total: 10 SPs</b>
Sp Id:	SP Name:	Gender:	Age:	Appt Status:	Comp. Status:	Comp.Comment:	
1	169910 Harris Broughton	M	35	Scheduled	Special Considerations:		
2	239464 Sarah Broughton	F	4	Scheduled	Special Considerations:		
3	479721 Sue Broughton	F	56	Scheduled	Special Considerations:		

Figure 10: Room Log

## Results Report

The Result Report displays a detailed listing of the examination results. Each component application is tailored to the examination. However all reports reflect the itemized results in tabular form in a style consistent with the sample below.

Physician Result Report							04/30/98 11:04
<b>Stand:</b>	551						
<b>Session:</b>	551574	04/25/98	08:30 - 12:30				
Sp Id:	508340	SP Name:	Allen Broughton	Person Gender:	M	Age At Interview Yrs:	46
Appt Id:	5510669	Appt Status:	SC	Exam Status:	P	Exam Comment: SP refusal	
Section Id:	Section Name:	Section Status:	Section Comment Code:	Section Comment	Other:		
1	Blood Pressure	C					
2	Fitness	N	SP refusal				
Ph Item Id:	Ph Item Text:	Ph Item Type:	Ph Result Num:	Ph Result String:			
BPQ010	Have you had any of the following in the past 30 minutes? (check each	1	1				
BPQ010A	food	1	2				
BPQ010B	alcohol	1	2				

Figure 11: Result Report

# Appendix A: Using PrintKey

## PrintKey Overview

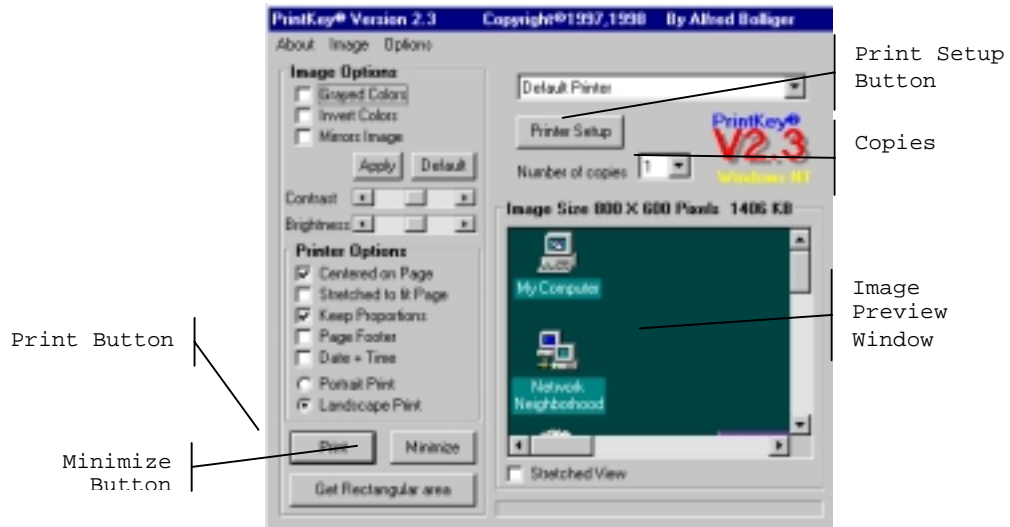
The PrintKey screen capture utility allows you to capture whole or partial screen images for immediate printing or saving to a file. Use this feature to capture any error messages that appear on the screen. Capturing the error message as it appears will enable the data manager to quickly determine the appropriate actions needed to correct the error.

PrintKey automatically loads whenever you logon a MEC workstation. It's icon appears in the system tray in the lower right corner of the screen next to the clock (looks like a little hand pushing a button). *Full Screen* and *Window Only* are two available options to capture various parts of a screen image. Full Screen captures the entire monitor screen, and Window Only captures the currently active window only, such as an error message window.

## Full Screen Capture

Full screen captures are used when the entire monitor image is needed. Each image will require approximately 1.5 Megabytes of space, which is more than what 1 floppy disk can hold.

- Press the **Print Scrn** key, a screen shot of the full screen is taken and the PrintKey utility window pops up:



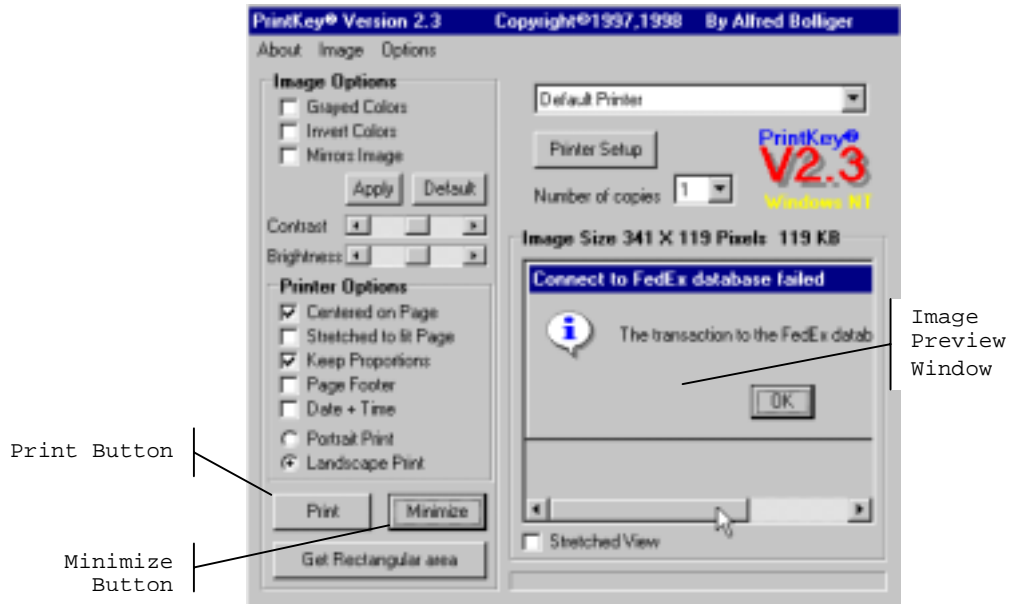
- Now you can print the image or save the image to a file.

## Window Only Capture

Window only captures are used when only the current window image is needed. The window can be an error message, dialog box, or a window within an application. Image sizes will vary depending on the area the window covers on the monitor. If you want to capture information in a

program without the distraction of toolbars and other graphics, this method works best.

- Press and hold the **Alt** key, then press the **Print Scrn** key. The capture of the open window is taken and the PrintKey utility window pops up:

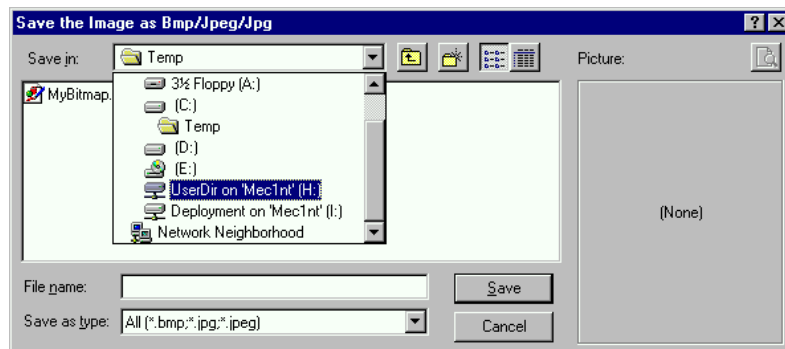


- Now you can print the image or save the image to a file.

## Saving Images to a File

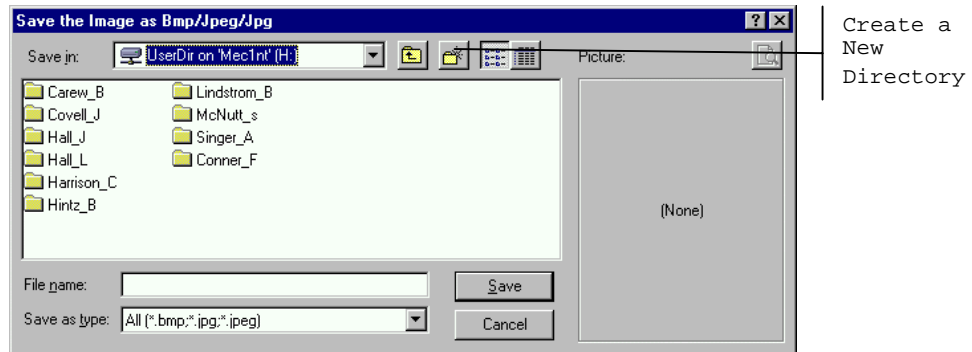
Images captured using any technique discussed below can be saved to a file for later use. This is how you do it:

- Click **Image** on the menu bar.
- Select **Save...** or press *Ctrl+S* keys.
- The Save dialog box appears.





- In the **Save in** drop-down list, select the destination directory/folder.
- The selected directory/folder, shown below, opens and displays individual subdirectories to store your files.



- Double-click to select your subdirectory if available, or make a new directory if you do not see one with your name.
- Name your image in the **File name** field.
- Select **BMP** from the **Save as type** drop down list.
- Click **Save**.
- Click **Minimize** on the PrintKey window.

## Printing a Screen Capture

### To print the image

- Click on **Print** in the lower left corner to print to the default printer.
- The capture will print at your designated printer.
- Click **Minimize** to hide the PrintKey window.

## **4. EQUIPMENT AND SUPPLIES**

### **4.1 Beginning of Stand Activities**

There are a number of tasks you will need to complete before beginning a new stand. These are described in this section.

#### **4.1.1 Preparing the Dietary Room**

Unpack all the food models from their plastic storage containers and wipe them clean. Arrange the models on the racks in the appropriate places. Remove the ring that holds the pull-out counter and store in one of the small storage boxes. Make sure the keyboard is ergonomically arranged and that the chair is the correct height for your comfort.

#### **4.1.2 Getting Oriented to a New Community**

Every community is different. The dietary interviewers make more adjustments to a new community than other exam team members because the information they collect reflects the customs of a community and its inhabitants. Regional food customs, variations in food preparation methods, terminology, and even foods may be unfamiliar at first. In time, you will learn that a "whoopie pie" reported in the Pennsylvania Dutch community is a cream-filled dessert cake and that "SOS" is another term for chipped beef on toast. Local newsletters, the interview system's online food glossaries, and interviewer training materials will help you to learn about foods that are likely to be reported during the survey. Still, there is nothing like "being there" in terms of observing, tasting, and reporting what is really happening!

A few suggestions to help start you out on this adventure. Large cities are often comprised of numerous ethnic neighborhoods— a Chinese neighborhood, a "Little Italy" section, or a neighborhood where a mixture of Caribbean cultures mingle together. Once you are settled in, take time to walk around the community, talk to shop owners and restaurant employees, and observe the names of grocery stores, markets, and restaurants that are situated in town. Take a few notes, read local papers, and pick up menus.

All of us are familiar with the major fast food chains such as "McDonald's" and "Hardees". In a small town, you may find out that a take-out restaurant called "Zack's" or "Big B" is where most of the take-out food comes from. Telephone yellow page directories are useful to obtain the names and addresses of stores and restaurants in a particular area. Newspapers frequently list upcoming festivals and events that involve regional foods. Finally, the survey field office and household interviewer staff are often familiar with the area and can provide suggestions for other places to visit.

### **4.1.3 Helpful Contacts**

The survey's Advance Arrangements Team has already laid the groundwork for the MEC team prior to their arrival at the survey location. Key representatives of the local government agencies, health departments, and clinics will be informed about the survey ahead of time. A list of contact people from the community is developed by the Team and is available for your use. The dietary interviewers are encouraged to take the initiative to call local nutritionists. Expect the response to be somewhat mixed. In smaller communities, the key nutrition contact person might be assigned to spend all or most of their time administering a specific program— WIC, elder meal program projects, home economist demonstration projects, and so forth, so their perspective on the "total community" might be limited. Often, community nutritionists cover several offices and/or large geographic areas so they have less time to talk. Suggestions: Try to set up a convenient time to talk and have your questions ready. Ideally, you will have an opportunity to meet at least one community nutritionist per stand. It is helpful to coordinate the community contact activities with your dietary team partner to avoid duplication of effort.

Suggested contacts also include:

- **Local newspapers-** Some have a food editor or guest writer who writes about regional food customs and foods.
- **Community colleges and universities-** A telephone directory may list academic departments; foods and nutrition, home economics, food service management, and dietetics departments have potential.
- **Community programs-** Food banks, congregate feeding sites for the general community and older populations. Check the local government pages of the telephone book for a contact name and number.
- **Public schools-** Schools usually have a central office that is responsible for school meal programs in a county. It may be necessary to contact a particular school directly, however, because cafeteria managers may have discretion to vary what is planned for the monthly menu cycles.

- **Local restaurants, grocery stores, delicatessens, bakeries, markets, and carryouts-** People are usually friendly and eager to help. If they seem suspicious or hesitant, simply tell them that you are working on a health study that is collecting information about the foods that people in their community and other parts of the United States eat. Always thank them for their time and help. You may want to have a few NHANES brochures on hand to help explain what the survey is all about.
- **Library-** Public libraries usually have a food and cooking session. A local branch may have cookbooks that have regional appeal.

## **4.2 End of Stand Activities**

There are a number of activities that you will need to complete before leaving the MEC for the next stand. These are described in this section.

### **4.2.1 Wrap-Up Activities**

Before you close out the stand you need to complete all housekeeping tasks. Following is a list of tasks that must be completed before you leave the area.

- All market check requests from the home office must be completed.
- All intakes needing data retrieval must be finalized.
- All interviews taped during the stand must be mailed to the home office.

### **4.2.2 Storing Food Models**

At the end of each stand, place the food models and accessories in the plastic storage box.

## 5. GENERAL INTERVIEWING TECHNIQUES

### 5.1 Before Beginning the Interview

Before beginning the interview, take some time to make sure you are thoroughly prepared. Thoroughly review your manual and other materials provided to you during training until you fully understand all aspects of your job. Practice doing the interview until you are comfortable using the automated system and probing. This practice will help in building your confidence so that you can deal with any situations you may encounter when you begin interviewing. Your ability to work comfortably will help keep your respondents interested in the interview and will help your interviews go smoothly. Respondents will quickly lose interest if you are constantly stopping, losing track of your place and stumbling over questions or probes.

Check to make sure you have sufficient quantities of all necessary materials, and that your materials are organized in an orderly way. Materials that are to be handed to respondents should be easily accessible to avoid any awkward fumbling or searching.

The first thing a respondent will notice about you is your appearance. In general, you should aim at an appearance that is neat, suitable, and inconspicuous. Avoid extremes of any kind. Keep in mind that it is better to be a little underdressed than overdressed, and that, regardless of what clothes you wear, cleanliness and neatness are always very important.

### 5.2 Beginning the Interview

When you first make contact with a respondent, your initial task will be to establish a friendly but professional relationship. Your own confident and professional manner will reassure the respondent and set a tone that will enable you to complete the interview in an efficient manner. Experience with past surveys has indicated that there are three main factors that increase the likelihood that a respondent will consent to be interviewed. They include: establishing rapport, convincing the SP of the importance of the survey, and convincingly responding to the SPs questions and objections.

**Establishing Rapport.** "Rapport" is the term used to describe the personal relationship between you and the respondent. Rapport provides the foundation for good interviewing. Your appearance, your introductory remarks, and the way you answer any questions the respondent may ask

will strongly influence the rapport that develops between you. What you say and how you say it should set the tone for the friendly, cooperative, but businesslike relationship that will continue to develop throughout the interview.

You must make a concerted effort to engage the SP during the interview. It could be very easy to become so absorbed in the computer screen that you forget you are dealing with a person.

**Convincing the Respondent that the Survey is Important and Worthwhile.** You must try to interest the respondent in the survey, and the dietary interview component in particular. Respondents are often hungry, tired, and impatient during the exam. Encourage the respondent to see the interview as an opportunity to express his/her views and to have those views taken seriously. From the start, give the respondent certain basic information about the interview: what to expect during the interview and what the purpose of the interview is. If asked, you may also explain how the information will be used, and the length of the interview.

**Responding to the Respondent's Questions and Objections.** Even respondents who are convinced of the importance of the study may, for a variety of reasons, be reluctant to grant a certain part of the interview. Your friendly manner, your introductory statements, and your success and confidence in answering the respondents' questions will help you sell both yourself and the survey to the respondents. Your effectiveness will be increased by your knowledge that your job is legitimate and important, and by your thorough understanding of what you are doing and how to do it.

Your own state of mind -- your conviction that the interview is important -- will strongly influence the respondent's cooperation. Your belief that the information you obtain will be significant and useful will help motivate the respondent to answer fully and accurately. Most people want to be heard and are happy that you have asked their opinions. Those who are reluctant to give specific information will often do so willingly, if they are convinced that good use will be made of it and that their privacy will be protected.

### **5.3 Administering the Interview**

Your task is to collect accurate information. You must have a thorough understanding of the general principles for administering the interview and comprehend fully its confidential nature. The material in the following sections of this manual will acquaint you with the general principles and procedures to follow when collecting survey data.

### 5.3.1 Asking the Questions

Although the 24-hour recall is essentially an open-ended interview, and varies by individual, the post-recall questions are more structured in terms of response options. Collecting accurate and reliable data requires that every respondent hears exactly the same questions read in exactly the same way. Even small changes in the way you ask a question can affect the way a respondent answers and, in the long run, affect the results when researchers combine the answers given by large numbers of respondents. The basic rules for asking survey questions, discussed below, are all designed to ensure uniformity in the way questions are asked of respondents.

**Always remain neutral.** During the entire interview you must always maintain a completely neutral attitude. As an interviewer, you must never allow anything in your words or manner to express criticism, surprise, approval, or disapproval of the questions you ask or of the answers respondents give.

An important part of your role as an interviewer is to get the respondent actively involved in the interview, to encourage him/her to talk comfortably and freely in response to your questions. While encouraging the respondents to talk freely, however, you must carefully avoid saying or doing anything to influence the content of the respondent's answers. No matter what topics you ask about, no matter how strongly you agree or disagree with the respondent's answers, and no matter how interesting, unusual or discouraging you might find those answers to be, you must always maintain the same neutral and professional stance during the interview. You are there to ask for and record the respondent's answers, not to influence or advise in any way.

At times, particularly if your respondent is talking freely, you may feel that he/she has already answered a question before you get to it. Do not skip over any scheduled questions, even though you think there may be some repetition. If a respondent becomes annoyed or says something like "I just told you that," you can acknowledge the repetition, but explain that you are required to ask all of the questions. You might say something like:

- "I need to make sure I have your full answer on that."
- "I thought perhaps you might have more to say about that."

Sometimes it may be helpful to anticipate the respondent's reaction to the repetition by saying something like:

- "You may already have mentioned this, but I need to make sure I have your answer recorded here."

or

- "You may have told me about this before, but let me ask this question to make sure I have the right answer."

To be a good interviewer, you must be comfortable with the questions you ask. If you feel uncomfortable with certain questions, it is likely that you will transmit something of that feeling to the respondent and influence the answers you receive. If you are uneasy with some questions, you should practice them repeatedly until you can ask them in a simple, straightforward, matter-of-fact way. Occasionally you will find a respondent who refuses to answer some questions, but usually you will find that as long as you can deal with all of your questions in the same relaxed and professional manner, your respondents will answer without hesitation.

**Ask all questions exactly as worded.** You must read each question completely and exactly as it is printed. Do not change even a single word, since even the smallest change can affect the entire meaning of a question. For the answers obtained by different interviewers to be combined, there must be no doubt that each respondent heard exactly the same question before responding. If you must repeat a question because the respondent did not hear you the first time or did not understand the question, reread the entire question. Do not omit any parts or words you think the respondent did hear or understand the first time.

**Even though you feel that the question could be worded much more simply, do not improvise. Every word is there for a purpose.** Emphasize only those words that are underlined or in bold type. Pause only at commas or, when answer categories are included in the question, after each answer category. Read everything in a natural, even-toned manner.

At times respondents may ask you to define words or to explain some part of a question. If a definition or explanation is provided in your Question-by-Question Specifications, you may give that explanation to the respondent. If the specifications do not provide an explanation, do not attempt one on your own. Simply let the respondent know that he/she should answer using his/her own definition. You might say, "whatever it means to you -- just answer that way," or "however you understand that word."



**Every effort should be made so that the respondent does not see the questions.**

Respondents can be influenced by knowing what questions are coming next or by seeing answer categories that are not read to them as part of a question. When it is appropriate for respondents to see the answer categories for a question, you will have a card showing those categories.

**Do not read answer categories to the respondent unless they are part of the question.**

Do not read material contained in the answer column to the respondent unless you are specifically instructed to do so. Instructions that are not read to the respondents are occasionally included with the question; these are usually printed in all capital letters.

In some questions, the answer categories are read to the respondent. For these questions, the answer categories are actually part of the question, as in the following example.

How does the amount of food (you/\_\_\_\_\_) consumed yesterday compare with (your/his/her) usual consumption for that day of the week? Was it much more than usual, usual, or much less than usual?

In other questions, the answer categories are not read to the respondent. For these questions, the answer categories will not be part of the question and will only appear in the response field, as in the following example.

How much plain water did you drink yesterday?

**Discourage unrelated conversation.** Occasionally a question may lead a respondent to begin reminiscing or to relate a lengthy story having little or no relevance to the survey. As an interviewer, your task is to discourage such irrelevant conversation and keep the discussion focused on the interview. In some ways, this requires that you subtly teach the respondent how to be a good respondent. Maintain a businesslike attitude, acknowledge answers with neutral comments such as "I see," "OK," or a simple nod of your head, and tactfully interrupt rambling and irrelevant answers to bring the conversation back to the question you have asked. The respondent will soon learn how to provide the kinds of answers you need. If you must interrupt a respondent, do it politely, taking care not to antagonize him/her. You might say something like:

- "That sounds very interesting, but what I need to ask is..."
- "I see what you mean, but let me repeat that last question..."

### **5.3.2 Maintaining Rapport**

You began your rapport-building process with your introduction and it must be continued throughout the interview. Through accepting and understanding behavior and your interest in the respondent, you can create a friendly atmosphere in which the respondent can talk freely and fully.

Occasionally rapport may be broken during the interview for some reason; for example, the respondent may feel that a particular question is "too personal." If this happens, take time to reassure the respondent that he/she may speak freely without fear. Restating the confidential nature of the interview and the impersonal nature of the survey may help to comfort the respondent. If a respondent refuses to answer a question after you have reassured him or her of confidentiality, do not press the respondent--enter a refusal response. The procedure will be explained later in the manual.

### **5.3.3 Difficult Situations**

Occasionally you will interview a hostile respondent who either tries to refuse the interview or who is very negative throughout the interview. The most effective way to avoid a refusal or to develop rapport with a hostile respondent is to be thoroughly informed about the study so that you can intelligently respond to questions while communicating the value of the study. A pleasant, professional tone of voice with an evenly-paced response will project your confidence and will begin to establish a rapport with the respondent.

If the respondent agrees to be interviewed but maintains a hostile demeanor that impacts on the data you collect, write a comment in the comment box on the Dietary Interview Status screen.

### **5.3.5 Reliability Issues**

The dietary interview includes a Dietary Recall Evaluation Screen on which you will estimate the reliability of the information the respondent provided. Your choices are "Reliable: and "Not Reliable". If you enter "Not Reliable" you must enter a brief reason in the comment box.

Exhibit 5-1. Interview Reliability Question

Dietary Recall : Stand: 301 Session: 301391 13-Apr-1998 08:30 am - 12:30 pm  
 File View Utilities Reports Window Help  
 Dietary Subsystem  
 SP ID: 567449 Name: Johnson, Louise Anderson Age: 40 years Gender: F Date: 4/24/98 Time: 03:10 PM  
**Dietary Recall Evaluation**  
 Did the SP/Proxy speak mostly: English  
 Was the main respondent for the interview? SP and Proxy  
 How reliable was the information? Reliable  
 Reason:  
 22 of 23  
 Close ENTER  
 Exam 80% complete

### 5.3.6 Incomplete Information

Respondents may not always be able to provide complete information about the food consumed. This is very common with proxy interviews. If the SP and the proxy respondent cannot provide complete information about a meal or food, you must attempt data retrieval. This procedure is described in detail in Section 7.4.

If the respondent cannot provide complete information because he/she can't remember, follow the procedures for documenting unknown foods (Section 6.3.8.3).

## **5.4 Probing**

The quality of the interview depends a great deal on your ability to probe meaningfully and successfully. During training, we will discuss and demonstrate appropriate probing techniques for each specific part of the dietary interview. The following section is a brief introduction to probing.

### **5.4.1 What is Probing and Why is it Necessary**

Probing is the technique you will use to stimulate discussion and obtain more complete information. We probe when a respondent's answer is not meaningful or is incomplete, i.e., when it does not adequately answer the question. There are a number of reasons respondents sometimes do not answer the question to our satisfaction.

In every day social conversation, people normally speak in vague and loose terms. It is understandable that respondents will at first answer our questions in a way that is not clear or specific. It is important to encourage the respondent to express himself/herself more concretely, in very specific terms.

Sometimes respondents will think that they are answering a question when all they are doing is simply repeating an answer that was already given, or simply repeating parts of the question. A respondent can talk a great deal and still be just repeating the question in different words.

Respondents will sometimes miss the point of the question. Many times they will give responses that seem to answer the question, but when you look further, are not to the point of the question and are therefore irrelevant. It is easy to be "taken in" by a respondent who is talkative and gives a lengthy and detailed response that is actually quite beside the point; it is not the answer to the question asked. In most cases, a respondent gives an irrelevant response because he/she has missed an important word or phrase in the question.

Probing, therefore, has two major functions. First, probing motivates respondents to enlarge, clarify, or explain the reasons for their answers. Secondly, probing focuses the respondent's answer so that irrelevant and unnecessary information can be eliminated. All this must be done, however, without introducing bias or antagonizing the respondent.

Some examples of answers that, for different reasons, fail to answer the questions properly are given next. Because of the answers given, each requires probing.

Examples of answers that require probing:

**Question:** How much plain water did you drink yesterday? Indicate only plain tap water, water from a drinking fountain, water from a water cooler, bottled water, and spring water.

**Answer:** My doctor says I should drink more water.

**Question:** How does the amount of food you consumed yesterday compare with your usual consumption for that day?

**Answer:** Well I usually don't have pancakes at breakfast.

#### **5.4.2 Probing Inappropriate Responses**

Sometimes a respondent will answer using words different from those in the answer categories you read. When this happens, do not make assumptions about what the respondent intends. If the respondent's answer does not clearly fit one of the provided answer categories, you must probe for a response you can code. Sometimes the best probe is repeating the original question. At other times, the best approach might be to ask, "Well, which comes closest?" and repeat all the answer categories.

At times a respondent will feel that none of the responses are suitable, or that under certain conditions they would choose one answer and under different conditions another. In this situation, you should try to get the respondent to generalize by repeating the question and saying, "Just generally speaking, is it this way or that?", or "Most of the time", or "In most cases", etc. If the respondent insists that he/she can't choose, be sure to enter exactly what is said, and let the home office decide how it should be coded.

**Question:** How much plain drinking water do you usually drink in a 24-hour period of time?

**Answer:** Well, not very much.

**Probe:** I see. But can you tell me, about how much you usually drink in a 24-hour period?

**Answer:** Well, I really can't

### **5.4.3 Probing Methods Should be Neutral**

It is very important to always use neutral probes. By this we mean you should not imply to the respondent that you expect a specific answer or that you are dissatisfied with an answer.

Remember, the reason for probing is to motivate the respondent to answer more fully or to focus the answer, without introducing bias. The potential for bias is great in the use of probes. Under the pressure of the interviewing situation, the interviewer may quite unintentionally imply that some answers are more acceptable than others or may hint that a respondent might want to consider this or include that in giving responses. You must be careful not to do this.

The following example consists of a response from the SP, and two possible probes. The first of these probes is neutral; the other is not.

Example:

**SP:** I had a cup of coffee at 9:00 a.m.

**Neutral Probe:** Did you add anything to your coffee?

**Non-neutral Probe:** So you probably added cream and sugar?

The non-neutral probe suggests a specific answer to the respondent and thus leads the respondent toward that answer, rather than leaving the range of possible responses completely open for the respondent to specify.

### **5.4.4 Kinds of Probes**

There are several different neutral probes which appear as part of a normal conversation that can be used to stimulate a fuller, clearer response.

**An expression of interest and understanding.** By saying such things as "uh-huh" or "I see" or "yes", the interviewer indicates that the response has been heard, that it is interesting and that more is expected.

**An expectant pause.** The simplest way to convey to a respondent that you know he/she has begun to answer the question, but has more to say, is to be silent. The pause, often accompanied by an expectant look or a nod of the head, allows the respondent time to gather his or her thoughts. Eye contact is important here.

**Repeating the question.** When the respondent does not seem to understand the question, or misinterprets it, seems unable to decide, or strays from the subject, it is often useful to repeat the question. Many respondents, when hearing the question for the second time, realize what kind of answer is needed.

**Repeating the respondent's reply.** Simply repeating what the respondent has said is often an excellent probe. Hearing the response just given often stimulates the respondent to further thought.

**Asking a neutral question or comment.** Neutral questions or comments are often used to obtain clearer and fuller responses. The following are some suggestions for probing questions that may help explore many types of insufficient answers.

**PROBES TO CLARIFY:**

- "What do you mean exactly?"
- "What do you mean by...?"
- "Could you please explain that a little? I don't think I quite understand."

**PROBES FOR SPECIFICITY:**

- "Could you be more specific about that?"
- "Tell me more about that."

**PROBES FOR RELEVANCE:**

- "I see. Well, let me ask you again... (REPEAT EXACT QUESTION)."

### **PROBES FOR COMPLETENESS:**

- "What else?"
- "What else can you think of?"

#### **5.4.5 The Don't Know (DK) Response**

The "I don't know" answer can mean a number of things. For instance,

- The respondent doesn't understand the question and says DK to avoid saying he/she doesn't understand;
- The respondent is thinking the question over, and says DK to fill the silence and give himself/herself time to think;
- The respondent may be trying to evade the issue because he/she is afraid of giving a wrong answer, or because the question seems too personal; or
- The respondent may really not know or really may have no opinion on the question.
- Try to decide which of the above may be the case. Don't be in too big a rush to settle for a "don't know" reply. If you sit quietly -- but expectantly -- your respondent will usually think of something. Silence and waiting are frequently your best probes for a "don't know" reply.
- Always try at least once to obtain a reply to a "don't know" response, before accepting it as the final answer. But be careful not to antagonize respondents or force an answer. If they say again that they "don't know," proceed to the next appropriate question after coding the DK reply.

#### **5.4.6 Additional Guidelines for Probing**

The following rules and examples provide further guidance to help you select probes that will not bias respondent's answers.

**Probe for Clarity and Specificity.** Don't ask "Do you mean \_\_\_\_ or \_\_\_\_?" Such a probe suggests only one or two possible answers, when the respondent may actually be thinking about other possibilities. Do use probes for clarity and specificity when a respondent's answers are unclear.

#### **Example:**



**Question:** Did you add anything to your cereal?

**Answer:** Yes, sweetener.

**Neutral Probe:** What kind was it?

**Non-neutral Probe:** Do you mean Equal or Sweet 'n Low?

**Probe for Completeness.** Don't try to sum up in your own words what someone has said, because this may suggest to the respondent that YOUR idea of his/her response is the "right answer." Do use probes for completeness to make certain that you've obtained full answers.

**Example:**

**Question:** How much of the brownie did you actually eat?

**Answer:** I had two.

**Neutral Probe:** What was the shape of the brownie?

**Non-neutral Probe:** Were these square brownies?

**5.4.7 When to Stop Probing**

You should stop probing when you have obtained all the necessary information about the respondent's diet. When you have received sufficient clarification from the respondent so that you (and home office staff) know exactly what he/she had in mind -- only then will you have a complete answer, and only then should you stop probing. However, if at any time the respondent becomes irritated or annoyed, discontinue probing. We do not want the respondent to refuse the rest of the interview.

**5.5 General Rules for Recording Answers**

So far, we have talked about how to ask the questions and how to obtain clear and complete answers. Both of these are very important jobs. However, it is also critical that the SP's answers are accurately recorded. Specific rules for recording using the automated system will be discussed

throughout training. The following general rules always apply. Recording or entering answers using the automated system is quite simple.

**Verbatim recording.** When a respondent elaborates on a response, use the respondent's own language word for word. Don't correct or summarize what you think the respondent means; let him/her speak for himself/herself. We are as interested in the kinds of words a respondent uses as in the meaning of an answer. If you are conducting the interview in Spanish, enter the responses verbatim in that language. These responses, however, must be translated into English later.

**Be sure to include the pronouns (he, she, I, they).** Without pronouns the meaning of the answer is frequently not as clear as you think.

## **5.6 Ending the Interview**

All people who give their time for an interview are entitled to courteous and tactful treatment. Try to leave respondents with the impression that they have taken part in an interesting and worthwhile experience -- one they would be willing to repeat.

After all questions have been asked, indicate your appreciation to respondents by thanking them; also mention that their contribution has been most helpful in providing important information to the study. Remember that the respondent is familiar with your task from the discussion at the beginning of the interview, so don't spend too much time going over the same information. Spend a few minutes answering any additional questions your respondent may have; then close the interview.

## **5.7 Editing**

After you have completed the interview with a respondent, you are to edit or check your work. You should try to complete the edit before the respondent leaves the MEC. Once the respondent leaves the MEC, data that were not collected or data that needed to be corrected are lost forever. Editing will be discussed in detail in Chapter 8.

### 5.7.1 Purposes of Editing

Although editing is not difficult, it is an important part of an interviewer's job. The main purposes of editing are:

**To review all sections of the interview** - Review each section to assure all information is complete and accurate.

**To learn from mistakes so they are not repeated** - There is an educational value in editing. Many interviewers feel that the interviewing procedures and Question-by-Question Specifications become more meaningful after they have conducted the first few interviews. Editing will improve the quality of your interviews for the remainder of the study, as well as catch errors. Editing, therefore, is part of the learning process for a survey.

**To write out abbreviations** - The clerical aspect of editing is an obvious one. This includes checking to make sure any abbreviations that are not commonly understood are clarified, and to assure that notes and any other comments are presented for easy comprehension.

**To add your comments which might help to clarify a response or an interview as a whole** - Add notes concerning the respondent, the interviewing situation, or anything else that you feel might help in the correct interpretation of the interview.