CDC
HEALTH RISK
APPRAISAL USER MANUAL

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OVERVIEW

In 1977, the Bureau of Health Education (currently the Center for Health Promotion and Education) at the Centers for Disease Control (CDC) established a cooperative relationship with Health and Welfare Canada. This relationship allowed the CDC to acquire the Canadian health risk appraisal (HRA) computer program and established the groundwork for future research and development activities at the CDC.

Since that time the CDC has distributed HRA computer software to more than 400 private, public and voluntary agencies, organizations and individuals. This involvement in the promotion and distribution of HRA has helped create a demand for HRA instruments and for additional training materials and services.

This user manual provides information on how to administer the CDC's adult health risk appraisal instrument and to interpret its printout.

PROMOTING YOUR WORKSHOP

Short of giving away money, there are a number of important things that you can do to promote the health risk appraisal sessions. Remember, for better or worse, you're in charge and the success of the workshop will largely depend on how well you plan and deliver the program. Careful planning and enthusiastic delivery will definitely pay off.

So where do you start? Let's begin by listing points that will greatly influence your program's success. This list contains key conditions that are necessary for support of the program and its participants. These recommendations are appropriate for community groups, clinic programs, schools, worksites, etc.

1. Obtain support from top leaders in the organization in an explicit policy statement, if possible.
2. Make arrangements for adequate staff and facilities for program delivery.
3. If the organization has a union, get its support.
4. Try to convince management in the workplace to provide adequate time off for participants in the HRA sessions and subsequent programs. The time commitment should be 50/50, paid/unpaid, although many successful programs do operate totally on employee time.
5. Make it clear as to who will follow up on identified health problems that are beyond the scope of the program.
6. Make certain screening available as part of the program (e.g., blood pressure screening, height and weight measurements).
7. Make sure all eligible participants receive a computer printout.
8. Follow the HRA workshop with educational programs at an appropriate time (e.g., 2-3 weeks after interpretation).
9. Make sure people in the program participate freely without coercion.
10. Provide the opportunity for people in the program to participate in educational program activities that occur as a result of this program.
11. Inform participants of the program's protocol and their personal results simply and understandably.
12. Assure confidentiality.
13. You may provide employers with aggregate data, but not individual data. If you do provide aggregate data, you must inform the participants.

Our experience shows that administrative approval, support and involvement are crucial for program success. However, you may not want to have management and nonmanagement staff participate in the same sessions. Help administrators understand the importance of employee health. Emphasize the relationship between wellness and productivity, long-term health care cost containment, absenteeism and morale. Be prepared to show the relationship between good health and reduced health care costs. (You might reference the book, Managing Health Promotion in the Workplace [16], for instance). However, don't encourage use of the program based upon cost effectiveness alone.

Once you have the support and the resources needed to deliver the workshop, you will want to turn your attention to the target population. How do you get people to take part in the program? Again, there are several things you'll want to keep in mind. Don't assume that your target audience already understands what "risk appraisal" means. Don't assume that everyone who indicates some interest will attend the workshop. So advertise, publicize and actively promote the program.

Begin your advance publicity 3-4 weeks before the first session. Use a variety of posters in well traveled areas. The posters should carry health education messages about physical fitness, weight control, smoking cessation and prevention, nutrition and general health in addition to information on the workshop itself. Cover other health topics that you plan to address in your health promotion program.

Many good materials such as pamphlets and posters are available from voluntary agencies, health departments, hospitals and other organizations. Make these materials easily accessible to your intended audience. Post notices on bulletin boards, circulate memos and include notices with payroll checks.

Next select a location for the workshop. You should consider the comfort and convenience of the participants when making a decision. An inconvenient location will substantially reduce the level of participation. The room should allow privacy for the duration of the session (usually 30-45 minutes). Avoid lunch rooms, lounges or other "break-room" areas as the location for your presentation.

You want to make your program as accessible as possible, so choose a time and location convenient to your participants. In many cases this may not be between the hours of 8-5.

HEALTH RISK APPRAISAL

Health Risk Appraisal is a promising health education tool that is still in the early stages of development. It is designed to show how your individual lifestyle affects your chances of avoiding the most common causes of death for a person of your age, race and sex. It also shows how much you can improve your chances by changing your harmful habits. (This particular version is not very useful for persons under 25 or over 60 years old and for persons who have had a heart attack or other serious medical problem.)

IMPORTANT: To assure protection of your privacy, do NOT put your name on this form. Make sure that you put your Health Risk Appraisal "claim check" in your wallet or other safe place and insure that the number matches the number on this form. You must present your claim check to get your computer results.

PARTICIPANT NUMBER └_____┘ 1-6

PLEASE ENTER YOUR ANSWERS IN THE EMPTY BOXES (use numbers only) ───────────▶

1. SEX   [1] Male   [2] Female   ☐ 7

2. RACE/ORIGIN   [1] White (non-Hispanic origin)   [2] Black (non-Hispanic origin)   [3] Hispanic
   [4] Asian or Pacific Islander   [5] American Indian or Alaskan Native   [6] Not sure   ☐ 8

3. AGE (At Last Birthday)   Years Old   ☐☐ 9-10

4. HEIGHT (Without Shoes)   Example: 5 foot, 7½ inches = [5]'[0][8]"   (No Fractions)   ☐'☐☐ 11-13

5. WEIGHT (Without Shoes)   Pounds   ☐☐☐ 14-16

6. TOBACCO   [1] Smoker   [2] Ex-Smoker   [3] Never Smoked   ☐ 17

(Smokers and Ex-smokers) — Enter average number smoked per day in the last five years (ex-smokers should use the last five years before quitting.)

Cigarettes Per Day	☐☐ 18-19
Pipes/Cigars Per Day (Smoke Inhaled)	☐☐ 20-21
Pipes/Cigars Per Day (Smoke Not Inhaled)	☐☐ 22-23

(Ex-smokers only)   Enter Number of Years Stopped Smoking (Note: Enter 1 for less than one year)   ☐☐ 24-25

7. ALCOHOL   [1] Drinker   [2] Ex-Drinker (Stopped)   [3] Non-Drinker (or drinks less than one drink per week)   ☐ 26

If you drink alcohol, enter the average number of drinks per week:

Bottles of beer per week	☐☐ 27-28
Glasses of wine per week	☐☐ 29-30
Mixed drinks or shots of liquor per week	☐☐ 31-32

8. DRUGS/MEDICATION How often do you use drugs or medication which affect your mood or help you to relax?
   [1] Almost every day   [2] Sometimes   [3] Rarely or Never   ☐ 33

9. MILES Per Year as a driver of a motor vehicle and/or passenger of an automobile (10,000 = average)   Thousands of miles   ☐☐[0][0][0] 34-38

10. SEAT BELT USE (percent of time used)   Example: about half the time = [5][0]   ☐☐☐ % 39-41

11. PHYSICAL ACTIVITY LEVEL
   [1] Level 1 - little or no physical activity
   [2] Level 2 - occasional physical activity
   [3] Level 3 - regular physical activity at least 3 times per week   ☐ 42

NOTE: Physical activity includes work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying.

12. Did either of your parents die of a heart attack before age 60?
   [1] Yes, One of them   [2] Yes, Both of them   [3] No   [4] Not sure   ☐ 43

13. Did your mother, father, sister or brother have diabetes?   [1] Yes   [2] No   [3] Not sure   ☐ 44

14. Do YOU have diabetes?   [1] Yes, not controlled   [2] Yes, controlled   [3] No   [4] Not sure   ☐ 45

15. Rectal problems (other than piles or hemorrhoids).   Have you had:

Rectal Growth?	[1] Yes [2] No [3] Not sure	☐ 46
Rectal Bleeding?	[1] Yes [2] No [3] Not sure	☐ 47
Annual Rectal Exam?	[1] Yes [2] No [3] Not sure	☐ 48

16. Has your physician ever said you have Chronic Bronchitis or Emphysema? [1] Yes [2] No [3] Not sure   [ ] 49

17. Blood Pressure (If known — otherwise leave blank)   Systolic (High Number)   [ ][ ][ ] 50-52

    Diastolic (Low Number)   [ ][ ][ ] 53-55

18. Fasting Cholesterol Level (If known — otherwise leave blank)   MG/DL   [ ][ ][ ] 56-58

19. Considering your age, how would you describe your overall physical health?
    [1] Excellent   [2] Good   [3] Fair   [4] Poor   [ ] 59

20. In general how satisfied are you with your life?
    [1] Mostly Satisfied   [2] Partly Satisfied   [3] Mostly Disappointed   [4] Not Sure   [ ] 60

21. In general how strong are your social ties with your family and friends?
    [1] Very strong   [2] About Average   [3] Weaker than average   [4] Not sure   [ ] 61

22. How many hours of sleep do you usually get at night?
    [1] 6 hours or less   [2] 7 hours   [3] 8 hours   [4] 9 hours or more   [ ] 62

23. Have you suffered a serious personal loss or misfortune in the Past Year? (For example, a job loss, disability, divorce, separation, jail term, or the death of a close person)
    [1] Yes, one serious loss   [2] Yes, Two or More serious losses   [3] No   [ ] 63

24. How often in the Past Year did you witness or become involved in a violent or potentially violent argument?
    [1] 4 or more times   [2] 2 or 3 times   [3] Once or never   [4] Not sure   [ ] 64

25. How many of the following things do you usually do?

    ● Hitch-hike or pick up hitch-hikers   ● Criticize or argue with strangers
    ● Carry a gun or knife for protection   ● Live or work at night in a high-crime area
    ● Keep a gun at home for protection   ● Seek entertainment at night in high-crime areas or bars

    [1] 3 or more   [2] 1 or 2   [3] None   [4] Not sure   [ ] 65

26. Have you had a hysterectomy? (Women only)   [1] Yes   [2] No   [3] Not sure   [ ] 66

27. How often do you have Pap Smear? (Women only)
    [1] At least once per year   [2] At least once every 3 years   [3] More than 3 years apart
    [4] Have never had one   [5] Not sure   [6] Not applicable   [ ] 67

28. Was your last Pap Smear Normal? (Women only)   [1] Yes   [2] No   [3] Not sure   [4] Not applicable   [ ] 68

29. Did your mother, sister or daughter have breast cancer? (Women only)   [1] Yes   [2] No   [3] Not sure   [ ] 69

30. How often do you examine your breasts for lumps? (Women only)
    [1] Monthly   [2] Once every few months   [3] Rarely or never   [ ] 70

31. Have you ever completed a computerized Health Risk Appraisal Questionnaire like this one?
    [1] Yes   [2] No   [3] Not sure   [ ] 71

32. Current Marital Status
    [1] Single (Never married)   [2] Married   [3] Separated
    [4] Widowed   [5] Divorced   [6] Other   [ ] 72

33. Schooling completed (O.   .ily)
    [1] Did **Not** graduate from high school   [2] High School
    [3] Some College   [4] College or Professional Degree   [ ] 73

34. Employment Status
    [1] Employed   [2] Unemployed
    [3] Homemaker, Volunteer, or Student   [4] Retired, Other   [ ] 74

35. Type of occupation (SKIP IF NOT APPLICABLE)
    [1] Professional, Technical, Manager, Official or Proprietor   [2] Clerical or Sales
    [3] Craftsman, Foreman or Operative   [4] Service or Laborer   [ ] 75

36. County of Current Residence (SKIP IF NOT KNOWN)

    [9][9][9] Other   [ ][ ][ ] 76-78

37. State of Current Residence   [9][9] Other   [ ][ ] 79-80)

INTRODUCING AND ADMINISTERING
THE HEALTH RISK APPRAISAL

Your introduction to the HRA should make the participants feel comfortable and receptive to what you have to say. Therefore, you need to keep the atmosphere pleasant, fun and informal. In your introduction, it's good to tell the participants how HRA can be useful to them. For instance, HRA points out various risks to health caused by certain behaviors and their link to leading causes of death. By providing a way to measure the risk, HRA motivates people to change unhealthy behaviors and reduce their risk. This, in turn, transfers some health responsibilities from others and/or the system to the individual.

In addition you should emphasize that the appraisal is anonymous and confidential and explain that each person is assigned a random number and given a claim check so that only (s)he can claim the printout. You may want to mention that HRA has been used by thousands of individuals and is updated as we learn more about the relationship between risk indicators and leading causes of death.

HRA is most appropriate for people from 25 to 60 years of age who do not have a serious illness. The computer program is less appropriate for younger people because chronic diseases are the leading causes of mortality in the United States and their impact is most prominent at 40 years of age and older.

Finally you should explain that the results do not predict future events, nor are they specific for any individual.

Once you have completed your introductory remarks, give the health risk appraisal questionnaire to each participant. Then proceed by taking the group through the following steps. Be sure to periodically scan the room for any indication of questions or confusion.

1. Instruct the participants to remove the claim check and make sure the number on the claim check matches the number on the questionnaire. They should keep their claim checks in their wallets or purses and present them at the next session so that their personal computer printouts can be delivered. No ticket—no printout! (If your procedures are different, then, of course, modify the instructions.) Also at this time announce time, date and location of the interpretation session and suggest that participants write this information on the appraisal claim check. If the results of the appraisal will be available only at the next meeting, make sure the participants understand this.

2. Instruct the participants that the first six questions must have complete answers in order for them to get a printout. You may want to read the first six questions aloud, giving participants adequate time to answer the question. Instruct participants to put in only the numbers that are possible answers.

As the group fills out the questionnaire, you may be asked a number of questions concerning how to answer a particular item or why it is included in the HRA. In order to help you answer these questions, we will discuss each question in the HRA by giving you some general information and then listing:

   a) the reaction of the computer to incomplete or inaccurate data(*),
   b) the relationship of each question to specific causes of death(**), and
   c) whether or not a particular condition is considered modifiable or controllable(***).

QUESTIONS (refer to HRA on pages 4-5):

1. **Sex:** Some questions are so easy that we respond automatically--and sometimes incorrectly. Emphasize that the number 1 or the number 2 is to be entered in the first box (7).

   *No code or improper code--No appraisal
   **Response used to identify group mortality data.

2. **Race/Origin:** One number, 1 through 6, must be selected. Only one number should be used. If participants are unsure, they should select "not sure" or the category they feel closest to in lifestyle and culture practices.

   *No code or improper code--Code 1 is assigned.
   **Response used to identify group mortality data.

3. **Age** (at last birthday): Stress that the information REALLY is confidential! Place the number of years of age in blocks 9-10, for example, 25, 33, 49, 57, or whatever the participant's current age is.

   *No code or improper entry--No appraisal
   **Response used to identify group mortality data.

4. **Height** (without shoes, in feet and inches): This is another one of the tough ones. Height must be in <u>feet</u> <u>and</u> <u>inches</u>, no fractions. For example, 5 feet, 7 1/2 inches is recorded $\boxed{5|0|8}$; 5 feet, 7 1/4 inches is recorded $\boxed{5|0|7}$.

   *No code or improper entry--No appraisal
   **Used (with weight) to determine recommended body weight.

5. **Weight** (without shoes): Suggest that normal footwear weighs about two pounds. It is best if participants can be weighed privately at the workshop. If weighing at the workshop is not possible, emphasize the importance of accuracy. Also, it's important for a participant weighing less than 100 pounds to fill out the boxes properly. For example, 98 pounds is $\boxed{\ |9|8}$ NOT $\boxed{9|8|\ }$. The latter response would be coded as 980 pounds. Round off fractions to the nearest whole numbers.

   *No code--No appraisal
   **Used (with height) to determine recommended body weight.
   ***Modifiable

6. **Tobacco:** Errors are common in this portion of the appraisal, so carefully explain this question to the participants. We suggest that everyone complete every box. (People who have never smoked would fill in boxes 18-25 with zeroes.)

NOTE: Frequently ex-smokers neglect to complete boxes 18-25. This error is responsible for about 50% of all computer rejections and is usually a result of inadequate explanation of this question to participants.

   *No code or improper entry--No appraisal
   **Response is used to determine risk for coronary heart disease, cancer and pneumonia.
   ***Modifiable

7. **Alcohol:** This item is easily misinterpreted, both intentionally and unintentionally. Again, it's important to stress that responses are anonymous and that alcohol is an important risk factor. You will also need to give a definition of a "drink" of alcohol. We define one drink as 12 ounces of beer, or 4 to 5 ounces of wine, or 1 1/2 ounces of liquor. It's also a good idea to explain that consuming three to six drinks per week represents average risk on this appraisal.

   A <u>drinker</u> is a person who, on the average, drinks one drink or more per week. Many people do not drink regularly, but do drink on holidays and special occasions. Remind them that it may not take many holidays and special occasions to total 52 drinks per year.

   An <u>ex-drinker</u> is someone who stopped drinking alcohol BEFORE signs or symptoms of cirrhosis of the liver appeared. This HRA is not appropriate for anyone with an existing serious medical condition. An ex-drinker should place a "2" in box 26 and either enter zeroes in boxes 27-32 or leave them blank.

   A <u>non-drinker</u> is anyone who consumes less than one drink per week.

   *No code—Program assigns average risk and lists missing-answers statements at bottom of page 2 of the printout.
   **Response is used to calculate risk for motor vehicle accidents and cirrhosis.
   ***Modifiable

8. **Drugs/Medication:** Participants should be instructed to answer this question based on whether or not they use <u>any</u> drug or medication to affect their mood or help them to relax. Do not define for them what drugs or medications you think have this effect.

   *No code—Program assigns average risk.
   **Response is used to calculate risk for motor vehicle accidents.
   ***Modifiable

9. **Miles:** Some people have difficulty answering this question, so be prepared to give some guidance. Suggest that they start by figuring mileage to and from their job or school. Next add miles of weekend travel and vacations. Point out that this figure should include miles traveled as a passenger as well as miles driven. Bus mileage that is not on a major highway need not be considered (because of the low risk for accident).

   Motorcycle riders present a unique problem for this question and for question number 10. The use of seat belts obviously does not apply to motorcycle riders but mileage is important for this group. Unfortunately, the current HRA program risk calculations do not reflect risks accurately for motorcycle riders. Motorcycle riders generally have about seven times the risk for death per mile traveled compared to auto passengers. This information should be provided to participants.

   *No code—Program assigns 1000 miles.
   **Response is used to calculate risk for motor vehicle accidents.
   ***Considered modifiable.

10. **Seat Belt Use:** Instruct the participants to enter the percentage of time they use a lap and/or shoulder harness while traveling the miles recorded in question number 9. Again, off-the-highway bus travel need not be considered. Remind them to code properly. For example, 50% is ☐⑤⓪ NOT ⑤⓪☐.

   *No code or improper code—Program assigns 0% usage.
   **Response is used to calculate risk for motor vehicle accidents.
  ***Modifiable

11. **Physical Activity Level:** Physical activity includes work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying. Regular physical activity usually means that the individual is active for at least 20 minutes on three or more occasions a week. The activity should be strenuous enough to raise the pulse rate to 75% of maximum. Maximum can be determined by subtracting the participant's age from 220.

   *No code or improper code—Program assigns average risk.
   **Response is used to calculate risk for coronary heart disease.
  ***Modifiable

12. **Family History of Heart Attack:** You need to make sure everyone understands this question. A person would answer "No" (3) if:

- both parents are alive (at any age).
- parent(s) died (at any age) from something other than a heart attack.
- parent(s) died of a heart attack after age 60.

   *No code or improper entry—Program assigns average risk.
   **Response is used to calculate risk for coronary heart disease.
  ***Not modifiable

13. **Family History of Diabetes:** This question concerns only the participant's mother, father, sister or brother who have been diagnosed by a physician as having diabetes.

   *No code or improper entry—Program assigns average risk.
   **Response is used to calculate risk for diabetes.
  ***Not modifiable

14. **Personal History of Diabetes:** Code 1 (Yes, not controlled) or Code 2 (Yes, controlled) indicates that the participant has been diagnosed as diabetic by a physician. Code 2 indicates that the participant is diabetic, but that the diabetes is controlled, for example, by medications and/or diet.

   *No code or improper entry—Program assigns average risk.
   **Response is used to calculate risk for heart disease.
  ***Controllable

15. **History of Rectal Problems:** "Rectal growth" means a growth such as a polyp in the rectal area. As indicated on the questionnaire, this does not include hemorrhoids.

*No code or improper entry—Code 2 (No) is assigned.
**Response is used to calculate risk for intestinal cancer.
***Not modifiable

"Rectal bleeding" is undiagnosed blood in the stools.

*No code or improper entry—Code 2 (No) is assumed.
**Response is used to calculate risk for intestinal cancer.
***Not modifiable

An annual rectal exam after age of 40 is considered important for early detection of intestinal cancer.

*No code or improper entry—Program assigns average risk.
**Response is used to calculate risk for intestinal cancer.
***Modifiable

16. **Chronic Bronchitis and/or Emphysema:** Condition must be diagnosed by a physician.

*No code—Code 2 (No) is assigned.
**Response is used to calculate risk for pneumonia.
***Not modifiable

17. **Blood Pressure:** It's a good idea to provide blood pressure readings for participants before completing the health risk appraisal. If they do not know their blood pressures, they should leave these boxes blank.

*No code—Program assigns average risk.
**Response is used to calculate risk for cardiovascular disease.
***Controllable

18. **Fasting Cholesterol Level:** In your preprogram promotion, alert potential participants that they should (but not must) know their fasting cholesterol level. If they do not know their fasting cholesterol levels, they should not fill in this box. The program does not recommend lowering elevated cholesterol because the protective effect of reduction was not known when this HRA program was written.

*No code—Program assigns average risk.
**Response is used to calculate risk for coronary heart disease.
***The risk is not considered modifiable.

19. **Description of Physical Health:** Participants' responses are based on their own feelings about their physical health.

*No code—Program assigns average risk.
**Response is used to calculate risk for suicide.
***Modifiable

20. **Life Satisfaction:** Participants' responses are based on their subjective feelings about how satisfied they are with their lives in general.

*No code—Program assigns average risk.
**Response is used to calculate risk for suicide.
***Modifiable

21. **Strength of Social Ties:** Participants' responses are based on their interpretation of the strength and quality of their relationships with other people.

    *No code—Program assigns average risk.
    **Response is used to calculate risk for suicide.
    ***Modifiable

22. **Hours of Sleep:** Indicates respondents' usual number of hours of sleep per night.

    *No code—Program assigns average risk.
    **Response is used to determine risk for suicide.
    ***Modifiable

23. **Serious Loss or Misfortune in Past Year:** This item relates to stress and rejection on the Distress Scale (p. 53). This question refers to any loss that the respondent feels is serious, for example, job loss, disability, divorce, death of a close person.

    *No code—Program assigns average risk.
    **Response is used to determine risk for suicide.
    ***Not modifiable

24. **Witness to or Involved in Violent or Potentially Violent Argument:** A violent situation is any situation that could result in bodily harm. Most arguments involve little or no risk of harm; however, the attitude and lifestyle of the respondent have a great deal of influence on the outcome of a potentially violent situation. Therefore, this question and the next question are included to determine if the respondent's lifestyle and attitude raise the risk of his/her becoming a victim of homicide.

    *No code—Program assigns average risk.
    **Response is used to calculate risk for homicide.
    ***Not considered modifiable.

25. **Homicide Risk Habits:** Same as question 24.

THE FOLLOWING FIVE QUESTIONS ARE FOR WOMEN ONLY.

26. **Hysterectomy:** Hysterectomy is the surgical removal of the uterus.

    *No code—Code 2 (No) is assigned.
    **Response is used to calculate risk for cervical cancer.
    ***Not modifiable

27. **Frequency of Pap Smear:** If the respondent has had a hysterectomy, she should skip this question.

    *No code—Program assigns average risk.
    **Response is used to calculate risk for cervical cancer.
    ***Modifiable

28. **Pap Smear Normal:** If the respondent has had a hysterectomy, she should skip this question.

   *No code--Program assigns average risk.
   **Response is used to calculate risk for cervical cancer.
   ***Not modifiable

29. **Family History of Breast Cancer:** Breast cancer in mother, sister or daughter of respondent must have been diagnosed by a physician.

   *No code--Code 2 (No) is assigned.
   **Response is used to calculate risk for cervical cancer.
   ***Not modifiable

30. **Breast Self-Exam:**

   *No code--Code 3 (rarely or never) is assigned.
   **Response is used to calculate risk for breast cancer.
   ***Modifiable

31. **Previous Health Risk Appraisal:** This information enables the HRA provider to know how many new people are being reached by health risk appraisal and generally how many people are monitoring their health status. If you want to know how many people are repeating your HRA each time it is offered, you can alter the question to find this out. (Example: Have you ever completed the CDC Health Risk Appraisal before now?)

   *No code--No effect on program (demographic information only).
   **Response is not used in calculations of risk.

32. **Current Marital Status:** This question is one of six that provides information needed to assess risk of suicide. This question also provides demographic information on the population served.

   *No code--Program assigns average risk.
   **Response used to calculate risk of suicide.

Questions 33-37 provide demographic information on the population served by HRA. None of the responses to these questions are included in calculations of risk, but they can be used to target programs in risk reduction to appropriate groups.

Let's go back over a few points that will ensure that each participant will get a printout.

1. Make sure you assign a unique matching number to each form and claim check before you distribute the questionnaire. This number must appear in the upper right part of the form. Make sure the participants understand that they must bring their claim checks to receive their printouts.

2. Emphasize to participants that the first six questions must be completed to get a printout back.

3. All answers should be numbers except for the participant number at the top of page. This may be numbers, letters or special characters.

4. Make sure the height entry is in feet $\boxed{5}$' and inches $\boxed{\ \ |2}$", that inches of single digits (0-9) are in the box on the right side, not the left, and fractions are rounded to the nearest inch. If an answer shows more than 12" in the last 2 blocks, correct this to reflect an additional foot.

5. Review smoking entry to verify that:

   a. Box 17 is filled in.
   b. If box 17 has a "1" or "2," then one or more of the following three entries should be answered.
   c. If box 17 has a "3," then the next four lines should be blanks or zeros.

6. All remaining lines should have <u>numbers</u>, <u>blanks</u>, <u>or</u> <u>zeros</u> as entries. Again, the right-hand box should be filled before the left-hand box.

7. Double-check your keypunching to make sure that you have entered participant answers accurately on punch cards or other forms of data entry.

8. It is <u>not</u> necessary to put the forms or the resulting punched cards in any order. The computer program at CDC will automatically sort the two-page HRA printouts in numerical order (or alphabetic order if letters are used in the participant number).

On the following pages, we are including two samples of completed appraisals with their printouts. The samples are for a 45-year-old white man (participant number XX8888) and a 45-year-old black woman (participant number XX9999). We will use the printout from the appraisal of the 45-year-old white man as an example in the sections of this manual on interpreting the printout and on how the mathematical calculations are made.

HEALTH RISK APPRAISAL

Health Risk Appraisal is a promising health education tool that is still in the early stages of development. It is designed to show how your individual lifestyle affects your chances of avoiding the most common causes of death for a person of your age, race and sex. It also shows how much you can improve your chances by changing your harmful habits. (This particular version is not very useful for persons under 25 or over 60 years old and for persons who have had a heart attack or other serious medical problem.)

IMPORTANT: To assure protection of your privacy, do NOT put your name on this form. Make sure that you put your Health Risk Appraisal "claim check" in your wallet or other safe place and insure that the number matches the number on this form. You must present your claim check to get your computer results.

PARTICIPANT NUMBER | XX 88 8B | 1-6

PLEASE ENTER YOUR ANSWERS IN THE EMPTY BOXES (use numbers only)

1. SEX	[1] Male	[2] Female			/ 7

2. RACE/ORIGIN
[1] White (non-Hispanic origin) [2] Black (non-Hispanic origin) [3] Hispanic
[4] Asian or Pacific Islander [5] American Indian or Alaskan Native [6] Not sure
/ 8

3. AGE (At Last Birthday) Years Old 4 5 9-10

4. HEIGHT (Without Shoes) Example: 5 foot, 7½ inches = [5]'[0][8]" (No Fractions) 5'1 0" 11-13

5. WEIGHT (Without Shoes) Pounds 1 8 5 14-16

6. TOBACCO [1] Smoker [2] Ex-Smoker [3] Never Smoked / 17

(Smokers and Ex-smokers) Enter average number smoked per day in the last five years (ex-smokers should use the last five years before quitting.)

	Cigarettes Per Day	3 0 18-19
	Pipes/Cigars Per Day (Smoke Inhaled)	0 0 20-21
	Pipes/Cigars Per Day (Smoke Not Inhaled)	0 0 22-23

(Ex-smokers only) Enter Number of Years Stopped Smoking (Note: Enter 1 for less than one year) 0 0 24-25

7. ALCOHOL [1] Drinker [2] Ex-Drinker (Stopped) [3] Non-Drinker (or drinks less than one drink per week) / 26

If you drink alcohol, enter the average number of drinks per week:

	Bottles of beer per week	1 2 27-28
	Glasses of wine per week	0 0 29-30
	Mixed drinks or shots of liquor per week	0 0 31-32

8. DRUGS/MEDICATION How often do you use drugs or medication which affect your mood or help you to relax?
[1] Almost every day [2] Sometimes [3] Rarely or Never 3 33

9. MILES Per Year as a driver of a motor vehicle and/or passenger of an automobile (10,000 = average) Thousands of miles 1 5 0 0 0 34-38

10. SEAT BELT USE (percent of time used) Example: about half the time = [5][0] 2 0 % 39-41

11. PHYSICAL ACTIVITY LEVEL
[1] Level 1 - little or no physical activity
[2] Level 2 - occasional physical activity
[3] Level 3 - regular physical activity at least 3 times per week
2 42

NOTE: Physical activity includes work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying.

12. Did either of your parents die of a heart attack before age 60?
[1] Yes, One of them [2] Yes, Both of them [3] No [4] Not sure
/ 43

13. Did your mother, father, sister or brother have diabetes?
[1] Yes [2] No [3] Not sure
2 44

14. Do YOU have diabetes?
[1] Yes, not controlled [2] Yes, controlled [3] No [4] Not sure
3 45

15. Rectal problems (other than piles or hemorrhoids).
Have you had:

	Rectal Growth?	[1] Yes [2] No [3] Not sure	2 46
	Rectal Bleeding?	[1] Yes [2] No [3] Not sure	2 47
	Annual Rectal Exam?	[1] Yes [2] No [3] Not sure	/ 48

(Continued on Other Side)

16. Has your physician ever said you have Chronic Bronchitis or Emphysema?   [1] Yes   [2] No   [3] Not sure   **2** 49

17. Blood Pressure (If known — otherwise leave blank)   Systolic (High Number)   **1 5 0** 50-52
    Diastolic (Low Number)   **9 5** 53-55

18. Fasting Cholesterol Level (If known — otherwise leave blank)   MG/DL   ☐☐☐ 56-58

19. Considering your age, how would you describe your overall physical health?
    [1] Excellent   [2] Good   [3] Fair   [4] Poor   **2** 59

20. In general how satisfied are you with your life?
    [1] Mostly Satisfied   [2] Partly Satisfied   [3] Mostly Disappointed   [4] Not Sure   **2** 60

21. In general how strong are your social ties with your family and friends?
    [1] Very strong   [2] About Average   [3] Weaker than average   [4] Not sure   **2** 61

22. How many hours of sleep do you usually get at night?
    [1] 6 hours or less   [2] 7 hours   [3] 8 hours   [4] 9 hours or more   **1** 62

23. Have you suffered a serious personal loss or misfortune in the Past Year? (For example, a job loss, disability, divorce, separation, jail term, or the death of a close person)
    [1] Yes, one serious loss   [2] Yes, Two or More serious losses   [3] No   **3** 63

24. How often in the Past Year did you witness or become involved in a violent or potentially violent argument?
    [1] 4 or more times   [2] 2 or 3 times   [3] Once or never   [4] Not sure   **3** 64

25. How many of the following things do you usually do?
    - Hitch-hike or pick up hitch-hikers
    - Carry a gun or knife for protection
    - Keep a gun at home for protection
    - Criticize or argue with strangers
    - Live or work at night in a high-crime area
    - Seek entertainment at night in high-crime areas or bars

    [1] 3 or more   [2] 1 or 2   [3] None   [4] Not sure   **2** 65

26. Have you had a hysterectomy? (Women only)   [1] Yes   [2] No   [3] Not sure   ☐ 66

27. How often do you have Pap Smear? (Women only)
    [1] At least once per year   [2] At least once every 3 years   [3] More than 3 years apart
    [4] Have never had one   [5] Not sure   [6] Not applicable   ☐ 67

28. Was your last Pap Smear Normal? (Women only)   [1] Yes   [2] No   [3] Not sure   [4] Not applicable   ☐ 68

29. Did your mother, sister or daughter have breast cancer? (Women only)   [1] Yes   [2] No   [3] Not sure   ☐ 69

30. How often do you examine your breasts for lumps? (Women only)
    [1] Monthly   [2] Once every few months   [3] Rarely or never   ☐ 70

31. Have you ever completed a computerized Health Risk Appraisal Questionnaire like this one?
    [1] Yes   [2] No   [3] Not sure   **2** 71

32. Current Marital Status   [1] Single (Never married)   [2] Married   [3] Separated   [4] Widowed   [5] Divorced   [6] Other   **2** 72

33. Schooling completed (One choice only)   [1] Did **Not** graduate from high school   [2] High School   [3] Some College   [4] College or Professional Degree   **2** 73

34. Employment Status   [1] Employed   [2] Unemployed   [3] Homemaker, Volunteer, or Student   [4] Retired, Other   **1** 74

35. Type of occupation (SKIP IF NOT APPLICABLE)   [1] Professional, Technical, Manager, Official or Proprietor   [2] Clerical or Sales   [3] Craftsman, Foreman or Operative   [4] Service or Laborer   **1** 75

36. County of Current Residence (SKIP IF NOT KNOWN)
    [9 9 9] Other   **9 9 9** 76-78

37. State of Current Residence   [9 9] Other   **9 9** 79-80)

- 15 -

YOUR HEALTH RISK DATA HAVE BEEN ANALYZED AND THE RESULTS ARE SUMMARIZED BELOW
AS THEY RELATE TO THE 12 MOST FREQUENT CAUSES OF DEATH FOR WHITE MALES AGED 45.

RANK	CAUSE OF DEATH	CHANCES OF DYING PER 100,000 WITHIN THE NEXT 10 YEARS			
		COL.1 AVERAGE	COL.2 APPRAISAL	COL. 3 ACHIEVABLE	COL.2-COL.3 DIFFERENCES
1	ARTERIOSCLEROTIC HEART DISEASE	2654	5387	1699	3688
2	LUNG CANCER	667	1000	800	200
3	CIRRHOSIS OF THE LIVER	415	830	415	415
4	SUICIDE	273	273	273	0
5	STROKE	252	377	251	126
6	NON-MOTOR VEHICLE ACCIDENTS	242	242	242	0
7	MOTOR VEHICLE ACCIDENTS	236	566	287	279
8	INTESTINAL CANCER INCL. RECTUM	165	40	40	0
9	CHRONIC BRONCHITIS AND EMPHYSEMA	132	198	138	60
10	PNEUMONIA	99	108	89	19
11	HOMICIDE	99	49	49	0
12	DIABETES	87	69	49	20
	ALL OTHER CAUSES	2052	2052	2052	0
	ALL CAUSES OF DEATH	7373	11191	6384	4807

	ACTUAL	APPRAISED	ACHIEVABLE	DIFFERENCE
AGE:	45	49.7	43.4	6.2

FOR HEIGHT 70 INCHES AND MEDIUM FRAME, 185 LBS. IS APPROXIMATELY 17% OVERWEIGHT - - - DESIRABLE WEIGHT IS 157 LBS.

*** COMPLIANCE ***

* AVERAGE CHANCES OF DYING ARE BASED ON 1975-1977 U. S. MORTALITY DATA. (CDC VERSION 1.1)
* APPRAISED AGE (OR "HEALTH AGE") IS AN ESTIMATE OF HOW HEALTHY YOU ARE COMPARED TO OTHERS OF YOUR RACE AND SEX.
* ACHIEVABLE AGE IS AN ESTIMATE OF HOW HEALTHY YOU COULD BE BY MAKING THE FOLLOWING CHANGES IN YOUR CONDITION/LIFESTYLE:

```
        EXERCISE     FROM:           MINIMUM     TO:    EXERCISE PROGRAM
        SMOKING      FROM:    STILL SMOKES 20+   TO:    STOPPED SMOKING
        BP:SYST      FROM:           150 MM.     TO:         140 MM.
        BP:DIAS      FROM:            95 MM.     TO:          88 MM.
        ALCOHOL      FROM:        7-24/WEEK      TO:         3-6/WEEK
        WEIGHT       FROM:           185 LBS.    TO:         161 LBS.
        SEATBELT     FROM:            10-24%     TO:         75-100%
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* NOTE -- HOMICIDE RISK IS PARTLY BASED ON HIGH-RISK ACTIVITIES INCLUDING USE OF WEAPONS, ENCOUNTERS WITH STRANGERS
         AND THE AMOUNT OF CONTACT WITH HIGH-CRIME AREAS.

* NOTE -- SUICIDE RISK IS PARTLY BASED ON ANSWERS TO QUESTIONS ABOUT PHYSICAL HEALTH, LIFE SATISFACTION, SOCIAL TIES, HOURS
         OF SLEEP, RECENT LOSS OR MISFORTUNE AND MARITAL STATUS.

CAUSE OF DEATH	CONDITION	APPRAISAL				ACHIEVABLE		
		AS APPRAISED	PARTIAL RISK	TOTAL RISK		ACHIEVED	PARTIAL RISK	TOTAL RISK
ARTERIOSCLEROTIC HEART DISEASE	BL.PRESS	150/ 95	1.0/1.4			140/ 88	0.8/1.1	
	DIABETES	NOT DIABETIC	0.9			NOT DIABETIC	0.9	
	WEIGHT	185	1.0			161	0.9	
	EXERCISE	MINIMUM	1.0			EXERCISE PROGRAM	0.6	
	SMOKING	STILL SMOKES 20+	1.5			STOPPED SMOKING	0.7	
	FH/HEART	YES	1.2	2.03		YES	1.2	0.64
LUNG CANCER	SMOKING	STILL SMOKES 20+	1.5	1.50		STOPPED SMOKING	1.2	1.20
CIRRHOSIS OF THE LIVER	ALCOHOL	7-24/WEEK	2.0	2.00		3-6/WEEK	1.0	1.00
SUICIDE	S-SCALE	AVERAGE RISK	1.0			AVERAGE RISK	1.0	
	ALCOHOL	7-24/WEEK	1.0	1.00		3-6/WEEK	1.0	1.00
STROKE	BL.PRESS	150/ 95	1.0/1.4			140/ 88	0.8/1.1	
	DIABETES	NOT DIABETIC	0.9			NOT DIABETIC	0.9	
	SMOKING	STILL SMOKES 20+	1.2	1.50		STOPPED SMOKING	1.0	1.00
MOTOR VEHICLE ACCIDENTS	ALCOHOL	7-24/WEEK	2.0			3-6/WEEK	1.0	
	MILES/YR	15000	1.5			15000	1.5	
	SEATBELT	10-24%	1.0			75-100%	0.8	
	DRUG USE	RARELY OR NEVER	0.9	2.40		RARELY OR NEVER	0.9	1.22
INTESTINAL CANCER INCL. RECTUM	RECT-GRO	HAS NOT HAD	0.9			HAS NOT HAD	0.9	
	RECTEXAM	ANNUAL	0.3			ANNUAL	0.3	
	RECT-BLD	NO BLOOD IN STOOL	0.9	0.24		NO BLOOD IN STOOL	0.9	0.24
CHRONIC BRONCHITIS AND EMPHYSEMA	SMOKING	STILL SMOKES 20+	1.5	1.50		STOPPED SMOKING	1.0	1.05
PNEUMONIA	ALCOHOL	7-24/WEEK	1.0			3-6/WEEK	1.0	
	SMOKING	STILL SMOKES 20+	1.2			STOPPED SMOKING	1.0	
	EMPHYSEM	DOES NOT HAVE	0.9	1.10		DOES NOT HAVE	0.9	0.90
HOMICIDE	ARGUMENT	SAW OR IN 0-1/YEAR	0.5			SAW OR IN 0-1/YEAR	0.5	
	LIFESTYL	AVERAGE RISK	1.0	0.50		AVERAGE RISK	1.0	0.50
DIABETES	WEIGHT	185	0.9			161	0.6	
	FH/DIAB	NO	0.9	0.80		NO	0.9	0.57

********************* END *********************

* RISK FACTORS ADAPTED FROM "HOW TO PRACTICE PROSPECTIVE MEDICINE",DRS. ROBBINS AND HALL, METHODIST HOSPITAL OF INDIANA.
* COMPUTER PROGRAM DEVELOPED BY THE CENTER FOR HEALTH PROMOTION AND EDUCATION, CENTERS FOR DISEASE CONTROL, DHHS. (V1.1,XYZ)

NOTE: HEALTH RISK APPRAISAL IS STILL IN ITS EARLY STAGES OF DEVELOPMENT. ITS MAIN VALUE IS ITS POTENTIAL FOR SHOWING THE
RELATIVE HEALTH RISKS ASSOCIATED WITH THE LIFESTYLE OF A PARTICULAR INDIVIDUAL. SINCE IT IS A DEVELOPMENTAL PROGRAM, IT
SHOULD BE INTERPRETED BY A QUALIFIED HEALTH PROFESSIONAL.

--PLEASE NOTE-- THE ABOVE ANALYSIS IS INCOMPLETE DUE TO MISSING ANSWERS TO CERTAIN QUESTIONS.
THESE QUESTIONS CONCERN THE FOLLOWING CONDITIONS:
CHOLESTR

HEALTH RISK APPRAISAL

99-1447

Health Risk Appraisal is a promising health education tool that is still in the early stages of development. It is designed to show how your individual lifestyle affects your chances of avoiding the most common causes of death for a person of your age, race and sex. It also shows how much you can improve your chances by changing your harmful habits. (This particular version is not very useful for persons under 25 or over 60 years old and for persons who have had a heart attack or other serious medical problem.)

IMPORTANT: To assure protection of your privacy, do NOT put your name on this form. Make sure that you put your Health Risk Appraisal "claim check" in your wallet or other safe place and insure that the number matches the number on this form. You must present your claim check to get your computer results.

PARTICIPANT NUMBER ⌊ *XX 9999* ⌋ 1-6

PLEASE ENTER YOUR ANSWERS IN THE EMPTY BOXES (use numbers only)

1. SEX	[1] Male [2] Female	[2] 7
2. RACE/ ORIGIN	[1] White (non-Hispanic origin) [2] Black (non-Hispanic origin) [3] Hispanic [4] Asian or Pacific Islander [5] American Indian or Alaskan Native [6] Not sure	[2] 8
3. AGE (At Last Birthday)	Years Old	[4][5] 9-10
4. HEIGHT (Without Shoes)	Example: 5 foot, 7½ inches = [5]'[0][8]" (No Fractions)	[5]'[0][7]" 11-13
5. WEIGHT (Without Shoes)	Pounds	[1][7][5] 14-16
6. TOBACCO	[1] Smoker [2] Ex-Smoker [3] Never Smoked	[3] 17

(Smokers and Ex-smokers) Enter average number smoked per day in the last five years (ex-smokers should use the last five years before quitting.)

Cigarettes Per Day	[0][0] 18-19
Pipes/Cigars Per Day (Smoke Inhaled)	[0][0] 20-21
Pipes/Cigars Per Day (Smoke Not Inhaled)	[0][0] 22-23

(Ex-smokers only) Enter Number of Years Stopped Smoking (Note: Enter 1 for less than one year) [0][0] 24-25

7. ALCOHOL	[1] Drinker [2] Ex-Drinker (Stopped) [3] Non-Drinker (or drinks less than one drink per week)	[1] 26

If you drink alcohol , enter the average number of drinks per week:

Bottles of beer per week	[0][0] 27-28
Glasses of wine per week	[1][8] 29-30
Mixed drinks or shots of liquor per week	[0][0] 31-32

8. DRUGS/MEDICATION How often do you use drugs or medication which affect your mood or help you to relax? [1] Almost every day [2] Sometimes [3] Rarely or Never		[2] 33
9. MILES Per Year as a driver of a motor vehicle and/or passenger of an automobile (10,000 = average) Thousands of miles		[2][0][0][0] 34-38
10. SEAT BELT USE (percent of time used) Example: about half the time = [5][0]		[ ][ ][ ] % 39-41

11. PHYSICAL ACTIVITY LEVEL

[1] Level 1 - little or no physical activity
[2] Level 2 - occasional physical activity
[3] Level 3 - regular physical activity at least 3 times per week

[1] 42

NOTE: Physical activity includes work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying.

12. Did either of your parents die of a heart attack before age 60? [1] Yes, One of them [2] Yes, Both of them [3] No [4] Not sure		[4] 43
13. Did your mother, father, sister or brother have diabetes? [1] Yes [2] No [3] Not sure		[1] 44
14. Do YOU have diabetes? [1] Yes, not controlled [2] Yes, controlled [3] No [4] Not sure		[3] 45

15. Rectal problems (other than piles or hemorrhoids).

Have you had:		
Rectal Growth?	[1] Yes [2] No [3] Not sure	[2] 46
Rectal Bleeding?	[1] Yes [2] No [3] Not sure	[2] 47
Annual Rectal Exam?	[1] Yes [2] No [3] Not sure	[2] 48

(Continued on Other Side)

16. Has your physician ever said you have Chronic Bronchitis or Emphysema? [1] Yes [2] No [3] Not sure |0| 49

17. Blood Pressure (If known — otherwise leave blank)   Systolic (High Number) |1|5|0| 50-52
    Diastolic (Low Number) | |9|5| 53-55

18. Fasting Cholesterol Level (If known — otherwise leave blank)   MG/DL |1|8|5| 56-58

19. Considering your age, how would you describe your overall physical health?
    [1] Excellent   [2] Good   [3] Fair   [4] Poor |3| 59

20. In general how satisfied are you with your life?
    [1] Mostly Satisfied   [2] Partly Satisfied   [3] Mostly Disappointed   [4] Not Sure |2| 60

21. In general how strong are your social ties with your family and friends?
    [1] Very strong   [2] About Average   [3] Weaker than average   [4] Not sure |1| 61

22. How many hours of sleep do you usually get at night?
    [1] 6 hours or less   [2] 7 hours   [3] 8 hours   [4] 9 hours or more |2| 62

23. Have you suffered a serious personal loss or misfortune in the Past Year? (For example, a job loss,
    disability, divorce, separation, jail term, or the death of a close person)
    [1] Yes, one serious loss   [2] Yes, Two or More serious losses   [3] No |1| 63

24. How often in the Past Year did you witness or become involved in a violent or potentially violent argument?
    [1] 4 or more times   [2] 2 or 3 times   [3] Once or never   [4] Not sure |3| 64

25. How many of the following things do you usually do?
    ● Hitch-hike or pick up hitch-hikers   ● Criticize or argue with strangers
    ● Carry a gun or knife for protection   ● Live or work at night in a high-crime area
    ● Keep a gun at home for protection   ● Seek entertainment at night in high-crime areas or bars
    [1] 3 or more   [2] 1 or 2   [3] None   [4] Not sure |1| 65

26. Have you had a hysterectomy? (Women only)   [1] Yes   [2] No   [3] Not sure |2| 66

27. How often do you have Pap Smear? (Women only)
    [1] At least once per year   [2] At least once every 3 years   [3] More than 3 years apart
    [4] Have never had one   [5] Not sure   [6] Not applicable |2| 67

28. Was your last Pap Smear Normal? (Women only)   [1] Yes   [2] No   [3] Not sure   [4] Not applicable |1| 68

29. Did your mother, sister or daughter have breast cancer? (Women only)   [1] Yes   [2] No   [3] Not sure |3| 69

30. How often do you examine your breasts for lumps? (Women only)
    [1] Monthly   [2] Once every few months   [3] Rarely or never |3| 70

31. Have you ever completed a computerized Health Risk Appraisal Questionnaire like this one?
    [1] Yes   [2] No   [3] Not sure |2| 71

32. Current Marital Status   [1] Single (Never married)   [2] Married   [3] Separated
    [4] Widowed   [5] Divorced   [6] Other |3| 72

33. Schooling completed (One choice only)   [1] Did **Not** graduate from high school   [2] High School
    [3] Some College   [4] College or Professional Degree |3| 73

34. Employment Status   [1] Employed   [2] Unemployed
    [3] Homemaker, Volunteer, or Student   [4] Retired, Other |3| 74

35. Type of occupation (SKIP IF NOT APPLICABLE)
    [1] Professional, Technical, Manager, Official or Proprietor   [2] Clerical or Sales
    [3] Craftsman, Foreman or Operative   [4] Service or Laborer |0| 75

36. County of Current Residence (SKIP IF NOT KNOWN)
    |9|9|9| Other |9|9|9| 76-78

37. State of Current Residence |9|9| Other |9|9| 79-80)

YOUR HEALTH RISK DATA HAVE BEEN ANALYZED AND THE RESULTS ARE SUMMARIZED BELOW
AS THEY RELATE TO THE 12 MOST FREQUENT CAUSES OF DEATH FOR BLACK FEMALES AGED 45.

RANK	CAUSE OF DEATH	CHANCES OF DYING PER 100,000 WITHIN THE NEXT 10 YEARS			
		COL.1 AVERAGE	COL.2 APPRAISAL	COL. 3 ACHIEVABLE	COL.2-COL.3 DIFFERENCES
1	ARTERIOSCLEROTIC HEART DISEASE	1611	2094	683	1411
2	STROKE	750	536	311	225
3	BREAST CANCER	528	528	264	264
4	CIRRHOSIS OF THE LIVER	422	844	422	422
5	LUNG CANCER	338	202	202	0
6	DIABETES	275	761	588	173
7	CANCER OF THE CERVIX	219	109	87	22
8	INTESTINAL CANCER INCL. RECTUM	189	153	45	108
9	HYPERTENSIVE HEART DISEASE	163	251	162	89
10	PNEUMONIA	150	150	150	0
11	HOMICIDE	145	217	217	0
12	NON-MOTOR VEHICLE ACCIDENTS	122	122	122	0
	ALL OTHER CAUSES	3193	3193	3193	0
	ALL CAUSES OF DEATH	8105	9160	6446	2714

```
                     ACTUAL    APPRAISED   ACHIEVABLE   DIFFERENCE
           AGE:        45         46.7        41.8          4.9
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FOR HEIGHT 67 INCHES AND MEDIUM FRAME, 175 LBS. IS APPROXIMATELY 25% OVERWEIGHT - - - DESIRABLE WEIGHT IS 139 LBS.

*** COMPLIANCE ***

* AVERAGE CHANCES OF DYING ARE BASED ON 1975-1977 U. S. MORTALITY DATA. (CDC VERSION 1.1)
* APPRAISED AGE (OR "HEALTH AGE") IS AN ESTIMATE OF HOW HEALTHY YOU ARE COMPARED TO OTHERS OF YOUR RACE AND SEX.
* ACHIEVABLE AGE IS AN ESTIMATE OF HOW HEALTHY YOU COULD BE BY MAKING THE FOLLOWING CHANGES IN YOUR CONDITION/LIFESTYLE:

```
           EXERCISE     FROM:       UNDESIRABLE      TO:  SEDENTARY EXER. PGM
           BP:SYST      FROM:          150 MM.       TO:            140 MM.
           BP:DIAS      FROM:           95 MM.       TO:             88 MM.
           ALCOHOL      FROM:        7-24/WEEK       TO:            3-6/WEEK
           FH/BREST     FROM:   NO FAMILY HIST.      TO:    NO FH + SELF-EXAM
           PAPSMEAR     FROM:  ONCE IN 2-3 YEARS     TO:       AS RECOMMENDED
           WEIGHT       FROM:         175 LBS.       TO:            144 LBS.
           DRUG USE     FROM:        SOMETIMES       TO:      RARELY OR NEVER
           SEATBELT     FROM:     LESS THAN 10%      TO:             75-100%
           RECTEXAM     FROM:    NO ANNUAL EXAM      TO: ANNUAL EXAM AFTER 40
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* NOTE -- HOMICIDE RISK IS PARTLY BASED ON HIGH-RISK ACTIVITIES INCLUDING USE OF WEAPONS, ENCOUNTERS WITH STRANGERS
     AND THE AMOUNT OF CONTACT WITH HIGH-CRIME AREAS.

CAUSE OF DEATH	CONDITION	APPRAISAL				ACHIEVABLE		
		AS APPRAISED	PARTIAL RISK	TOTAL RISK		ACHIEVED	PARTIAL RISK	TOTAL RISK
ARTERIOSCLEROTIC HEART DISEASE	BL.PRESS	150/ 95	1.0/1.4			140/ 88	0.8/1.1	
	CHOLESTR	BELOW 220	0.5			BELOW 220	0.5	
	DIABETES	NOT DIABETIC	0.9			NOT DIABETIC	0.9	
	WEIGHT	175	1.1			144	0.9	
	EXERCISE	UNDESIRABLE	1.4			SEDENTARY EXER. PGM	1.0	
	SMOKING	NON-SMOKER	0.8	1.30		NON-SMOKER	0.8	0.42
STROKE	BL.PRESS	150/ 95	1.0/1.4			140/ 88	0.8/1.1	
	CHOLESTR	BELOW 220	0.5			BELOW 220	0.5	
	DIABETES	NOT DIABETIC	0.9			NOT DIABETIC	0.9	
	SMOKING	NON-SMOKER	0.7	0.71		NON-SMOKER	0.7	0.41
BREAST CANCER	FH/BREST	NO FAMILY HIST.	1.0	1.00		NO FH + SELF-EXAM	0.5	0.50
CIRRHOSIS OF THE LIVER	ALCOHOL	7-24/WEEK	2.0	2.00		3-6/WEEK	1.0	1.00
LUNG CANCER	SMOKING	NON-SMOKER	0.6	0.60		NON-SMOKER	0.6	0.60
DIABETES	WEIGHT	175	1.3			144	0.6	
	FH/DIAB	YES	2.5	2.77		YES	2.5	2.14
CANCER OF THE CERVIX	PAPSMEAR	ONCE IN 2-3 YEARS	0.5	0.50		AS RECOMMENDED	0.4	0.40
INTESTINAL CANCER INCL. RECTUM	RECT-GRO	HAS NOT HAD	0.9			HAS NOT HAD	0.9	
	RECTEXAM	NO ANNUAL EXAM	1.0			ANNUAL EXAM AFTER 40	0.3	
	RECT-BLD	NO BLOOD IN STOOL	0.9	0.81		NO BLOOD IN STOOL	0.9	0.24
HYPERTENSIVE HEART DISEASE	BL.PRESS	150/ 95	1.0/1.4			140/ 88	0.8/1.1	
	WEIGHT	175	1.1	1.54		144	0.9	1.00
PNEUMONIA	ALCOHOL	7-24/WEEK	1.0			3-6/WEEK	1.0	
	SMOKING	NON-SMOKER	1.0	1.00		NON-SMOKER	1.0	1.00
HOMICIDE	ARGUMENT	SAW OR IN 0-1/YEAR	0.5			SAW OR IN 0-1/YEAR	0.5	
	LIFESTYL	ABOVE AVERAGE RISK	2.0	1.50		ABOVE AVERAGE RISK	2.0	1.50

********************* END *********************

* RISK FACTORS ADAPTED FROM "HOW TO PRACTICE PROSPECTIVE MEDICINE",DRS. ROBBINS AND HALL, METHODIST HOSPITAL OF INDIANA.
* COMPUTER PROGRAM DEVELOPED BY THE CENTER FOR HEALTH PROMOTION AND EDUCATION, CENTERS FOR DISEASE CONTROL, DHHS. (V1.1,XYZ)

NOTE: HEALTH RISK APPRAISAL IS STILL IN ITS EARLY STAGES OF DEVELOPMENT. ITS MAIN VALUE IS ITS POTENTIAL FOR SHOWING THE
    RELATIVE HEALTH RISKS ASSOCIATED WITH THE LIFESTYLE OF A PARTICULAR INDIVIDUAL. SINCE IT IS A DEVELOPMENTAL PROGRAM, IT
    SHOULD BE INTERPRETED BY A QUALIFIED HEALTH PROFESSIONAL.

--PLEASE NOTE-- THE ABOVE ANALYSIS IS INCOMPLETE DUE TO MISSING ANSWERS TO CERTAIN QUESTIONS.
    THESE QUESTIONS CONCERN THE FOLLOWING CONDITIONS:
        FH/HEART EMPHYSEM

In Gestalt psychology, there is something called the "a-haa" experience. The "a-haa" is that magical moment when something clicks in our heads and we suddenly understand what previously had been a mystery to us. Health risk appraisal is an educational process that provides a number of "a-haa" opportunities. Each step prepares participants for the succeeding step, and as they go through these steps, participants realize that they can have some control over crucial health behaviors.

In this section we will take some of the mystery out of risk appraisal and show how the appraised and achievable ages are determined. When we are through, we hope everyone will say "a-haa, so that's how it's done."

WHAT ARE THESE NUMBERS?

The computer compares health habits of the HRA participant with the health habits of people who have died from specific causes. These comparisons help participants understand whether or not they are in danger of premature death from a particular cause. If they are, the printout indicates specific changes they should make in their health habits to lower the risk of an early death.

REMEMBER: Conditions and health habits that lead to premature death are still under intensive study. But even though we do not have complete data, we have enough information available now to help people make decisions about their lifestyle.

The first thing that appears on the HRA printout is a table that lists numbers relating to a person's chances of dying in the next ten years by the twelve leading causes of death for the same age/race/sex group as the participant.

This example is taken from the printout on pages 16-17.

RANK	CAUSE OF DEATH	CHANCES OF DYING PER 100,000 WITHIN THE NEXT 10 YEARS			
		COL.1 AVERAGE	COL.2 APPRAISAL	COL.3 ACHIEVABLE	COL.2-COL.3 DIFFERENCES
1	ARTERIOSCLEROTIC HEART DISEASE	2654	5387	1699	3688

COL. 1: Average This column lists the number of people of a specific age, race and sex group expected to die in the next ten years of a specific cause. For example, according to this printout, out of every 100,000 45-year-old white men in the United States, 2654 will probably die of arteriosclerotic heart disease within the next ten years.

COL. 2: Appraisal This column shows the number of people per 100,000 of a specific age, race and sex with the same health habits who are estimated to be at risk of dying from a specific cause in the next ten years. In this example, out of 100,000 45-year-old white men who have the same combination of

health habits affecting their risk of heart disease (undesirable exercise levels, no family history of heart disease or diabetes, smoke 20+ cigarettes a day), 5387 are expected to die in the next ten years of a heart attack.

COL. 3: Achievable This column lists the number of people out of 100,000 of a specific age, race and sex who do not have those health habits and who could be expected to die from a particular cause; e.g., of all 45-year-old white men who do not have the undesirable health habits mentioned previously, only 1699 out of every 100,000 are expected to die of a heart attack in the next ten years.

COL. 2 - COL. 3: Differences The figures in this column are obtained by subtracting the mortality figure in the Achievable Col. 3 from those in the Appraisal Col. 2. It is simply the difference in the number of expected deaths for people who have made changes in their health habits from the expected deaths for those who still have these health habits. You will notice that there is a difference of 3688 in the two groups of white men, age 45, when Col.3 is substracted from Col.2.

Note: The causes of death for a particular age/race/sex group are placed in rank order in the left-hand column.

The next thing you will see on the printout is AGE, which is divided into actual, appraised and achievable age.

	ACTUAL	APPRAISED	ACHIEVABLE	DIFFERENCE
AGE:	45	49.7	43.4	6.2

Actual age is the current age reported by the participant on the questionnaire. Appraised age is an estimated "health age" taking into account how some health behaviors affect total health and life expectancy. Achievable age is an estimated "health age" a person could be after changing certain health behaviors. The difference is the achievable age subtracted from the appraised age. This difference indicates potential for improvement. If the arithmetic does not look exactly right (49.7 minus 43.4 equals 6.3, not 6.2), it is because each fraction is actually calculated to the fourth decimal. When the program rounds these fractions off, an apparent error may occur.

Weight is singled out in the printout indicating how the participant compares with the Metropolitan Life Height/Weight Tables (1959). Following that is a table listing changes in health behavior the participant can do to bring his/her appraised age closer to achievable age.

HEALTH HABIT	FROM	PRESENT HABIT	TO	RECOMMENDED HABIT
EXERCISE	FROM:	MINIMUM	TO:	SEDENTARY EXERCISE PROGRAM
SMOKING	FROM:	STILL SMOKES 20+	TO:	STOPPED SMOKING
BP:SYST	FROM:	150mm	TO:	140mm
BP:DIAS	FROM:	95mm	TO:	88mm
ALCOHOL	FROM:	7-24/WEEK	TO:	3-6/WEEK
WEIGHT	FROM:	185 LBS.	TO:	161 LBS.
SEATBELT	FROM:	10-24%	TO:	75-100%

On the second page of the printout is a table entitled "Detail." This table shows the relationship of the items in HRA and the leading causes of death in the participant's age/race/sex group. The relationship of each item is expressed as a numerical value; 1.0 represents average risk or what is the normal chance of someone in that age/race/sex group of dying of the cause of death listed. Numbers higher than 1.0 indicate a higher-than-average risk. Numbers lower than 1.0 (0.9 and lower) indicate lower-than-average risk.

Partial Risk is the risk that each individual item, which could be a health habit or family history, contributes to the participant's chances of contracting the disease or becoming a victim of one of the causes of death. When all partial risks for a leading cause of death are added together, the result is called total risk for that cause of death.

This table shows partial risk and total risk for each item in the HRA based on the participant's answers. These numbers are listed under "Appraisal." Then the partial risks and total risks are listed showing how these risks would change if the participant would change lifestyle or health habits that affect the different causes of death. These numbers are listed under "Achievable."

Example:

DETAIL

APPRAISAL

CAUSE OF DEATH	CONDITION	AS APPRAISED	PARTIAL RISK	TOTAL RISK
ARTERIOSCLEROTIC	BL. PRESS	150/95	1.0/1.4	
HEART DISEASE	DIABETES	NOT DIABETIC	0.9	
	WEIGHT	185	1.0	
	EXERCISE	MINIMUM	1.0	
	SMOKING	STILL SMOKES 20+	1.5	
	FH/HEART	YES	1.2	2.03

In this printout, the person described is not diabetic, is in high/normal weight range, and has an undesirable (although average) exercise level. An elevated blood pressure, cigarette smoking and a family history of heart disease place him at increased risk for heart disease.

The total risk for heart disease is 2.03, which is more than double the average risk. By altering certain health behaviors, this elevated risk could be reduced to the level indicated in the next example:

Example:

ACHIEVABLE

ACHIEVED	PARTIAL RISK	TOTAL RISK
140/88	0.8/1.1	
NOT DIABETIC	0.9	
161	0.9	
EXERCISE PROGRAM	0.6	
STOPPED SMOKING	0.7	
YES	1.2	0.64

As you can see, if this same person controls his blood pressure, loses some weight, begins an exercise program and stops smoking, he can reduce his appraised age remarkably. A man who made all of these changes would change the total risk for heart disease from 2.03 to 0.64, from an above-average risk to a below-average risk. Recommend to the participants that they begin by selecting one condition to alter. Suggest to people that they should start modestly and build on success.

In summary, state to participants that these are the most basic details for reading your HRA printout. THIS IS NOT INTENDED TO BE A COMPREHENSIVE MEDICAL ANALYSIS NOR A SUBSTITUTE FOR A MEDICAL EXAMINATION. But it does indicate some of the more common threats to health and life over the next ten years. Finally, stress that HRA deals with <u>probabilities</u>, not certainties.

For more detailed information, participants should discuss this printout with a professional health care provider.

In conclusion, most of the information you provide will be new to the majority of the participants, so be aware that the concepts, calculations and recommendations require a clear, concise presentation. Encourage questions and answers. There are additional materials available that will help you explain HRA to the workshop participants. Those materials are available from your HRA Focal Point. (For the name and address of your Focal Point, contact the Center for Health Promotion and Education, Division of Health Education.)

INTERSET SURVEY

Near the end of the interpretation session you will want to determine the group's interest in entering a specific health education program. Remember that a very important reason for offering the health risk appraisal is to promote interest in behavior change programs and then to make certain programs available. Use this opportunity to get a commitment from the participants to followup programs. Be sure to offer self-help materials to interested participants.

The following survey is one way of collecting the information that you will need to decide which activities are in greatest demand. This is a sample survey. You may choose to add questions concerning other risk factors covered by HRA, such as seat belt use and violence.

HEALTH INTEREST SURVEY

We are developing some health promotion programs for our group. This survey will help us determine the kinds of programs that will be offered.

Please complete this form and return it to the group facilitator at the end of the workshop.

I. If a health promotion program were made available to you, which of the following would you be most likely to attend?

	Yes, if free	Yes at a small cost	No

A. Luncheon Speaker Presentation

Covering such topics as nutrition, stress management, smoking prevention and cessation, etc.

B. Cardiovascular Fitness

1. Informal fitness club for employees to help them develop their personal exercise programs and report their progress at regular intervals.

2. Fitness class including warm-up, jogging, exercises for flexibility and strength, cool-down.

C. Personal Stress Management

D. Organizational Stress Management

E. Smoking Cessation Workshop

F. Weight Control and Nutrition Education Workshop

II.   What time and day would be most convenient for you to attend?

<u>Day</u> <u>of</u> <u>Week</u>

Early morning, before work ----------------------- ---------------

Noon hour -- ---------------

Late afternoon, after work ----------------- ---------------

Evenings -- ---------------

Saturdays -- ---------------

III. In which seasons of the year would you most likely participate?

Spring   -----------

Summer   -----------

Fall   -----------

Winter   -----------

IV.   Would you be interested in programs that could include family members?

V.   Could changes be made in your work environment that would better support
      healthy behaviors? (Example: choice of fruit and/or fruit juices as
      well as soft drinks and coffee.)

VI.   Would you be willing to assist in the planning and delivery of
      programs? If yes, specify topics: ---

VII. Any suggestions for additional health promotion programs? If so, please
      use this space to make suggestions.

Thanks for your interest!

HEALTH RISK APPRAISAL RECOMMENDATIONS

In the appendix, you will find recommendations for changes of 15 precursors or conditions that put a person at risk for disease or premature death. These recommendations are not listed in any priority. Let's go through the recommendations now in a little more detail so that you will be able to explain to the participants the recommendations listed on their printouts under Compliance on the first page and under Achievable on the Detail chart on the second page.

1. **Weight**

   If the participant is 3% to 15% overweight (based on Desirable Weights for Men and Women [11]) we recommend losing 100% of the excess weight. If the participant is 16% to 40% overweight, we recommend a loss of 85% of the excess weight. If the participant's weight is 41% or more above the recommended maximum, then we recommend a loss of 75% of the excess weight. The reason for not recommending that individuals who are more than 15% overweight lose all excess weight is to make the weight loss task seem less formidable.

2. **Tobacco**

   We recommend that all current smokers stop. When calculating the risk for the leading causes of death for individuals in a particular age/race/sex group, we take into account how much they smoke, or for those who have stopped smoking, how many years since they smoked and how much they smoked before they quit.

3. **Alcohol**

   We have two recommendations concerning alcohol consumption. First, we recommend that anyone who reports consuming 41 or more drinks per week stop drinking. Second, we recommend that anyone drinking 7-40 alcoholic drinks per week reduce the amount to 3-6 drinks per week. Consuming 3-6 drinks per week constitutes average risk.

4. **Drugs/Medication**

   The responses to this question are structured in a vague manner so that individuals may feel less reluctant to report their use of any drug or medication that affects their mood or helps them to relax. If participants report almost daily use of drugs or medication for this purpose, we recommend that they reduce their use to "sometimes." If participants report that they use drugs or medication sometimes, then we recommend that they reduce their use to "rarely or never." These recommendations apply solely to use before driving. You should inform participants of this fact so they will not stop taking prescribed medications.

5. **Seat Belt Use**

   We recommend that people who use seat belts less than 75% of the time increase their use to 75%-100% of the time.

6. Physical Activity

Generally in defining physical activity we include duration (20 minutes or more of exercise per session), frequency (three or more days per week) and intensity (activity that raises heart rate to 75% of maximum. Maximum heart rate is 220 minus the individual's age). Our intent is to move the inactive person moderately and steadily towards this level of activity. So, for anyone reporting little or no physical activity, the recommendation is to advance to a sedentary exercise program. For some people, this will mean walking around the block. A physician's examination may be indicated for someone with one or more of the following characteristics: age over 35 years, overweight, high blood pressure, history of heart problems, etc. For the person who reports occasional physical activity, we recommend advancing to regular physical activity.

7. Diabetes

A history of diabetes increases an individual's risk for heart disease as well as for diabetic complications. It is important for the participant to understand that even though risks cannot be eliminated because the disease cannot be eliminated, the risk can be markedly reduced when the disease is properly controlled. Therefore, we recommend that uncontrolled diabetes be controlled.

8. Annual Rectal Exam

For all participants of any age who report that they do not have an annual rectal exam, we recommend an annual exam after age 40. The message is intended to be educational for those people who are currently under 40 years of age.

9. Systolic Blood Pressure

We recommend that anyone reporting systolic blood pressure of 141 or more reduce this to 140mm.

10. Diastolic Blood Pressure

We recommend anyone reporting diastolic blood pressure that is 89mm or more reduce it to 88mm.

11. Fasting Cholesterol Level

No recommendations.

12. S-Scale (Distress Scale)

The distress rating is based on the combination of scores from six separate questions on the health risk appraisal (numbers 19, 20, 21, 22, 23 and 32). We recommend that respondents who receive a total score that places them at above-average risk for suicide seek professional help.

13. Lifestyle (Homicide)

Risk for being a victim of homicide is based on two questions (numbers 24 and 25). We make no recommendations on this issue.

14. **Pap Smear**

   Except for participants who report getting a Pap smear at least once a year, we
   recommend all women get a Pap smear as recommended by the American Cancer Society.

15. **Breast Self—Exam**
   We recommend that all women examine their breasts every month.

Finally, there are two special messages for two groups.

A.   For participants who have none of the adverse conditions we have discussed, this
     message appears on the printout:

     "All lifestyle factors analyzed by this computer program are within accepted
     limits, and therefore no changes have been recommended."

B.   For participants who are over 75 years of age:

     "As your age is outside of our range, we can only give you our best wishes for many
     additional years of good health."

FREQUENTLY ASKED QUESTIONS
AND THEIR ANSWERS

The easiest way to prepare for interpreting the health risk appraisal is to have some idea of what questions will probably be on the minds of participants. During the past few years, literally hundreds of interpretation sessions have been held involving thousands of participants. Essentially, there are certain questions that are asked repeatedly; some of these questions are about process and so their answers will vary depending on what kind of program activity you plan. Most of the questions, however, have to do with the format and specific content of the questionnaire and of the printout. In this section we will cover those "most frequently asked questions."

Some of these questions and answers should be added to the presentation just to get the group thinking about questions that they want answered. A group that doesn't ask questions may need to know that there are no dumb questions. One way to do this comfortably is to state that "many people who have taken this appraisal have wondered..." or "when I took this appraisal, I had questions about...."

GENERAL:

1. Q: *What are the safeguards regarding privacy, confidentiality and human subject issues?*

   A: The participant number is used to protect privacy and permit individuals to claim their HRA results. In clinics or other settings experienced with the handling of confidential data, it may be desirable or necessary to record participant names. If names are recorded, explain carefully how the records are used and what happens to them when the sessions are completed. Inform the participants if and how aggregate data are to be used. Provide additional information as needed. Use a healthy measure of good sense.

2. Q: *Does health risk appraisal work?*

   A: Health risk appraisal works as a method of informing, educating and sometimes motivating people about their personal health habits. It clearly promotes and advocates certain health behaviors. It does not work well as a stand-alone health promotion program. At its annual meeting, the Society of Prospective Medicine evaluates the state of the art of HRA. If you are interested in this information, contact the Society of Prospective Medicine, 4405 East-West Highway, Suite 210, Bethesda, Maryland 20814.

3. Q: *What do you recommend to older participants?*

   A: Although persons older than 55 (and younger than 25) present unique problems, it does not necessarily mean that persons in these age groups should not be appraised. It simply means that the facilitator must pay special attention to these individuals and make sure they understand not only the information on the printout, but also of the limitations caused by the data used. You may want to consider other appraisals for these specific groups.

4. Q: *What do you recommend to participants with existing medical conditions?*

   A: We do not recommend that these people take the HRA. The results and recommendations will be misleading and possibly dangerous for participants with certain medical conditions such as heart disease, lung disease, cancer, cirrhosis, and muscular-skeletal disorders.

5. Q: *Why are some risks to health not addressed (e.g., birth control pills, caffeine, saccharine)?*

   A: Some risks to our health are not included because we are not sure of their relationship to any leading cause of death (e.g. caffeine, saccharine). Others are not included because only a small percentage of the population is affected or because other means are available to inform those at risk (e.g. birth control pills, occupational and environmental risks).

6. Q: *How do you determine how many people may die in a 10-year period?*

   A: U.S. mortality data obtained from the National Center for Health Statistics for the years 1975-77 have been combined with population estimates to produce the tables.

7. Q: *Who developed health risk appraisal?*

   A: Numerous national, State and local health agencies in addition to the private sector have developed HRA. The HRA has been modified and improved by many of these users. In addition, there are numerous other health risk appraisals available from other people and organizations.

CDC'S HEALTH RISK APPRAISAL QUESTIONNAIRE

1. Q: *What is the basis for the suicide questions?*

   A: The distress scale derived from a suicide risk scale developed by Calvin
        Frederick (See page 53) is the basis for questions 19, 20, 21, 22, 23 and 32.
        Risk of suicide is determined from the answers to these questions combined with
        the answer on the amount of alcohol the participant consumes.

2. Q: *What is the basis for the homicide questions?*

   A: Estimated risk for homicide is based on the answers to questions 24 and 25,
        i.e., how many times the participant was near violent arguments or involved in
        other high-risk activities.

3. Q: *In general, what is the source and basis for all questions?*

   A: The basic questionnaire was acquired from Health and Welfare Canada in 1977.
        This group derived these questions from the book, How to Practice Prospective
        Medicine (13). Questions pertaining to suicide, homicide and cervical cancer
        were modified by CDC in 1981 to replace several misleading and controversial
        questions included in the original version (e.g., family history of conviction
        for a violent crime).

4. Q: *What happens when the respondent gives incomplete answers or skips a
        question?*

   A: If questions 1,3,4,5 and 6 on the CDC's Health Risk Appraisal are not answered,
        the computer will reject the questionnaire. If any other questions are
        unanswered, the computer assigns an average risk. If Question 2 is unanswered,
        the participant is assigned to the white, non-Hispanic group.

5. Q: *What is the reason for the question on drugs and medications?*

   A: The purpose of this question is to obtain information on additional factors
        that place the individual at increased risk for motor vehicle accidents. It is
        intentionally vague so that people will be less hesitant to indicate they use
        illegal drugs. However, the fact that it is vague limits its usefulness as
        well.

6. Q: *How many questions must be answered in order to receive a printout?*

   A: If the participants answer questions 1,3,4,5 and 6 following explicit
        instructions by the facilitator, they will get a printout. The only other
        condition that will cause the computer to reject a questionnaire is the use of
        a letter (A,B,C) or a special character (*,-,/) in boxes 7 through 75.

1. Q: *What is the rationale for assigning average risk to people who consume 3-6 drinks per week?*

   A: We feel that very heavy drinkers should quit drinking completely, while it is probably safe for others to drink moderately. The one exception to moderate drinking is that no one should drink before driving.

2. Q: *What is a "sedentary exercise program"?*

   A: Individuals who do little or no physical activity should gradually build up to an exercise program. The word sedentary is intended to discourage people from rapidly entering into a vigorous exercise program. They should first consult with a physician especially if they have a history of cardiovascular or respiratory problems, or if they are presently taking prescribed medication.

3. Q: *Why are there no recommendations on how to reduce the risk of homicide?*

   A: At the time this program was developed, there were no known risk reduction programs available for individuals with this particular risk. There is also the difficulty of determining the relative contribution to risk of the different risk indicators.

4. Q: *Why is alcoholism not included?*

   A: Although the relationship between heavy drinking and alcoholism may seem obvious, there is no general agreement among experts about the causal relationship. It is believed there may be a genetic component to alcohol dependency.

5. Q: *Why are there no fasting blood cholesterol recommendations?*

   A: When the program was developed, there was no conclusive research information available to indicate how beneficial a reduction in cholesterol level would be for the normal population. Recently completed studies from the National Institutes of Health have produced such information, which will eventually be incorporated into the program. You should tell participants that this HRA is in the development stage and that it will need to be revised periodically to incorporate new research and improved methodology.

6. Q: *Why is the recommendation for an annual rectal exam included for* <u>*everyone*</u>*?*

   A: We include this message for all age groups as a health education measure.

7. Q: *How are recommended weights determined?*

   A: The basis for these recommendations is the height/weight tables published by the Metropolitan Life Insurance Company (1959). New Metropolitan tables (1983) will be included in the next revision of the HRA. Specifically, the recommendations are:

1. If the person is underweight (any amount) up to 3% overweight--no recommendation to change weight.

2. If the person is 3%-15% overweight--lose excess weight to midrange of weights recommended in the table for persons with a medium frame and a specific height and sex.

3. If the person is 16%-40% overweight--lose 85% of excess weight.

4. If the person is 41% or more overweight--lose 75% of excess weight.

NOTE: The recommendations for 75% and 85% reduction of excess weight were originally developed by Health and Welfare Canada in 1972. These recommendations are reasonable target weights for persons who are moderately to significantly overweight. We suggest that you give printed copies of both 1959 and 1983 tables to participants with their HRA printouts since recommended weights vary for persons with large or small frames.

8. Q: *Why 12 leading causes of death?*

   A: By including 12 leading causes of death, we were sure that all major causes that contribute 1% or more of total number of deaths for any age/race/sex group would be included.

9. Q: *Why does the weight/height sentence in the printout say "small or medium frame" sometimes and "medium frame" other times?*

   A: The "medium frame" phrase is used in the printout when the person needs to lose weight and the "small or medium frame" phrase is used when there is no recommendation for weight loss. In fact, in all cases the values used to determine how much a person was overweight are those for a person of medium frame. There are two reasons for this: approximately 80% of all people are of medium frame and, at the time this HRA was developed, there was no reliable way to determine a person's frame size.

10. Q: *Why does the weight recommendation in the Achievable column on page two of the printout sometimes differ from the desirable weight shown in the middle of the first page?*

    A: Desirable weight is obtained directly from the 1959 Metropolitan Life Insurance height/weight tables. The weight recommendation on the printout exceeds the desirable weight when respondents are more than 15% heavier than their desirable weight.

11. Q: *What determines the order of the compliance statements on the printout?*

    A: Recommendations are not listed in any priority. The computer merely prints them in the order they are listed in the computer program.

12. Q: *What is an exercise program?*

    A: Any program or activity that causes the heart rate to increase to 75% of maximum for 20 minutes or more at least three times a week is an exercise program. (Maximum heart rate is 220 minus the person's age.)

13. Q: *How much does consuming 7-24 drinks of alcohol a week increase the risk for motor vehicle accidents over consuming 3-6 drinks a week?*

A: In a word, double. The assigned risk values for motor vehicle accidents are:

Non-drinker = 0.5
3-6 drinks per week = 1.0
7-24 drinks per week = 2.0
25 or more drinks per week = 5.0

14. Q: *Why would a 34-year-old white woman who smokes 20+ cigarettes per day have a higher risk factor for heart disease than a 47-year-old white man who does the same?*

A: A risk factor indicates how much a particular risk indicator value (e.g. 20+ cigarettes per day) varies from the <u>average</u> risk for a <u>particular age, race, and sex group</u>. Since there are fewer 34-year-old white women who smoke a pack or more a day than there are 47-year-old white men who smoke the same amount, these female smokers, all other things being equal, will have higher <u>risk factors</u> than the older male smokers. However, since a risk factor is only <u>one</u> factor in determining actual risk (the other factor being average mortality for the particular age, race, sex group), it is very misleading to compare the risk factors of one group to another.

15. Q: *What are the assigned risk values for lung cancer and arteriosclerotic heart disease based on number of cigarettes smoked; i.e., is there greater assigned risk from smoking 60 cigarettes per day when compared to smoking 20 cigarettes per day?*

A: Yes, generally the more cigarettes smoked per day, the greater the risk for both lung cancer and heart disease. The following table shows the risk value for lung cancer and arteriosclerosis for men, ages 30-34, based on the number of cigarettes smoked per day.

<u>Lung Cancer</u>	<u>Arteriosclerosis</u>
40 cigarettes = 2.0	10 or more cigarettes = 1.5
20 cigarettes = 1.5	1-9 cigarettes = 1.1
10 cigarettes = 1.1	cigars or pipe = 1.0
1-9 cigarettes = 0.8	Stopped smoking within 10 years = 1.0
Nonsmoker = 0.2	Nonsmoker or stopped 10 years = 0.5

16. Q: *What are recommended cholesterol levels?*

A: We use 220-279 as an average range, but we do not make a recommendation for risk reduction. Recommendations from a physician will probably vary depending on individual circumstances. Research points to a relationship between elevated cholesterol levels and heart disease. Some research suggests that lowering cholesterol blood levels lowers risk for heart disease among certain populations. However, there are questions about how much protection, if any, occurs in the general population when they lower cholesterol levels, and how soon after reducing cholesterol levels that this protection occurs.

NOTE: Risk for some conditions may stay above average even after behavior changes because we do not know how much the change affects the risk or how long it takes for complete reversal to occur.

17. Q: *Who decided how much impact a risk factor has on a person's total risk for a particular disease?*

    A: Much of this was taken from How to Practice Prospective Medicine (13). In addition we considered appropriate available literature and consulted with authorities in these fields to make other determinations.

18. Q: *What racial categories are used in the mortality data?*

    A: Black and white. Participants of other races are compared with white mortality data. Limitations in death certificate accuracy, census data inadequacies, and insufficient number of deaths are the principle reasons for not having mortality rates for other groups.

We hope these questions frequently asked by participants and our answers will help you get ready for your presentation. Now we are going to anticipate some of your questions.

1. Q: *What do you tell people who are at high risk for some disease?*

    A: Explain the relationship between risk indicators and causes of death. Make sure individual counseling is available. Make certain that they understand this information is not a diagnosis, but only the expected chance of death for a group of persons similar to themselves. Also mention that there are other actions not covered by this appraisal that individuals can take to further reduce their risk (and their appraisal age).

2. Q: *Can the HRA questionnaire be modified by anyone?*

    A: Anyone can if they have the technical ability. We, however, advise considerable caution. It is best to first find out if the changes you require have been made by someone else. You may be able to save time by acquiring public domain revisions.

3. Q: *How are risk factors determined?*

    A: Risk factors have been identified through longitudinal studies, case-control studies, clinical studies, retrospective studies and other records and reports.

4. Q: *What is the reliability/validity of the questionnaire?*

    A: Some studies show that people will, at different times, give different answers for questions that should always have the same answers. (That is, a person may report being 5 feet, 4 inches tall

on one HRA and 5 feet 10 inches tall on a followup HRA.) Other studies indicate that self-report information is really pretty consistent. You can greatly reduce the number of errors by properly introducing HRA and by carefully going over the questions with the participants. However, since the HRA questionnaire is not designed primarily as a measurement or survey instrument, you should not use it as an evaluation tool. HRA is designed primarily to guide people into health promotion activities.

Since HRA is not appropriate for all populations, you should consider how well participants of various educational/linguistic levels understand particular questions on the HRA and how often they are able to successfully chose a response. Our experience indicates that the questionnaire works reasonably well for literate English-speaking adults with the exception of the questions on smoking and height. Incorrect answers for these two questions account for 75% of computer rejections.

5. Q: *How can we indicate to young people their future risk if they smoke?*

    A: HRA facilitators can generate a second printout for participants who are 35 years old or younger by adding 20 years to the age of the participant or by substituting age 45 for the actual age of the participant. This will project the risks they will have at that age if they keep the same unhealthy behaviors such as smoking. However, this could be somewhat misleading since a young person usually has lower weight and lower blood pressure than an older person.

6. Q: *Why do people aged 35 and below have such young appraisal/achievable ages?*

    A: This is the most common question of HRA facilitators. Young appraisal ages for this group are caused by the nearly constant rate of mortality in people of ages 15-30. An alternate method of risk-age determination developed by CDC corrects for this. The alternate method makes the risk age more acceptable for young adults while continuing to deliver a credible health education message. This method can be implemented by changing about 12 lines of computer code. The procedure is available from your HRA distributor.

7. Q: *How do you score the appraisal manually?*

    A: See the section on mathematical calculations (pages 42-45) in this manual. Calculating all the factors without a computer is lengthy especially when you consider the availability and speed of microcomputers. However, learning how to score the HRA manually can be important for the HRA facilitator.

8. Q: *What kind of interpretation and counseling do you recommend?*

   A: At a minimum we recommend that participants be provided the opportunity to attend a group interpretation session where they will begin to understand how to interpret the printout. We recommend that individualized followup counseling be provided to help the individual chose specific health promotion activities. Persons at high risk should definitely be offered the opportunity for individual counseling.

   Contracting with other health care providers, referral to intervention services and screening can often be included with minimal effort.

9. Q: *How do you recommend the HRA be used in a health fair setting?*

   A: Both handscored (for example, HealthStyle) and interactive health risk appraisals can be useful in a health fair setting. In addition, directories of available health promotion programs, pamphlets on behavior modification methods and limited interpretation/counseling can be provided. Be sure to distribute a handout that explains that HRA is NOT a diagnosis. The CDC HRA should not be used in settings where interpretation is not available.

10. Q: *How do you recommend HRA be used in the workplace?*

    A: The health risk appraisal can be an important entry-level health promotion activity in a workplace program. You can use HRA to gain acceptance and involvement of both employer and employee for a health promotion program. Follow up rapidly with program activities. Often the employer will use HRA group data to help determine which activities to offer to the group.

11. Q: *How do you recommend HRA be used in a clinic setting?*

    A: The health risk appraisal should be used the first time a patient visits a clinic and periodically thereafter. HRA should be conducted when the patient's history is to be taken. HRA results should be used to plan preventive activities and to determine the need for additional screening. "Prescriptions" should include, for example, instructions on diet, exercise or how to quit smoking.

12. Q: *How do you recommend HRA be used in a classroom setting?*

    A: The health risk appraisal can be used to demonstrate the relationship between certain risk indicators and the leading causes of death. However, there are other more appropriate tools for use in grades K-12.

13. Q: *How do you set up a lifestyle program?*

A: Begin by organizing interested persons, gain support from influential agencies and organizations (including management if the target population is in a worksite), perform HRA as described in this manual and offer lifestyle change programs using experts in the community or in the interested group.

14. Q: *How do you get organizational support?*

A: The cost effectiveness of health promotion is discussed in <u>Managing Health Promotion In The Workplace</u> (7) and in other publications. You can use this information to support your case and cultivate the interest of key decision-makers.

15. Q: *How do you use group summary data?*

A: The group summary computer program is available for the HRA. The group summary is used to provide group leaders (and management) information that will help them make decisions concerning resource allocation and program selection. It also gives participants a way to compare themselves to the group.

16. Q: *Describe how the computer software program works?*

A: The software program takes questionnaire responses and formats them into categories similar to those in Robbins and Hall's <u>How to Practice Prospective Medicine</u> (13). Then the program looks up mortality data and risk factor data that are pertinent to the individual's age, race, sex and personal lifestyle characteristics. Next, it calculates the individual's appraised risk for each of the 12 leading causes of death. Then by substituting recommended values of risk into the same risk estimation equations, it calculates an achievable level of risk. Finally, the program computes an appraisal and an achievable age and prints all of the participant's data and recommendations on a two-page computer printout.

17. Q: *When will the Risk Factor Update Project be completed?*

A: In 1984 we will publish the Risk Factor Update. Currently, funding for completion of the study of other main causes of death is not available. A major update of the computer software including new risk data is projected optimistically for the end of 1985. Mortality data and risk estimation data periodically (i.e. 3-5 years) require revision as new prospective studies are available.

18. Q: *Is there any evidence that changing behavior alters risk?*

    A: Smoking statistics offer the best documentation of the effect of behavior change on risk reduction. Mortality rates from several cancers are much greater among current smokers that among nonsmokers and exsmokers (those who stopped before clinical symptoms appeared). Also people who do not smoke generally have lower blood pressure and cholesterol levels than smokers.

19. Q: *What is a simple, effective way to determine cardiovascular fitness?*

    A: The Canadian Step Test is a simple, inexpensive means of measuring cardiovascular fitness. It is a way to determine pulse rate recovery after the person steps up and down from a 12" high step at a specified pace for a specific time period.

20. Q: *How is a blood pressure clinic organized?*

    A: The easiest way to organize a blood pressure clinic is to ask the American Heart Association, the American Red Cross, or any other organization in the community that screens for high blood pressure to help.

21. Q: *How are blood cholesterol levels obtained?*

    A: A blood specimen is obtained and tested at an approved laboratory. Even though it is generally accepted (but not universally practiced) it is not necessary to fast unless HDL and triglyceride levels are also being obtained.

22. Q: *What is a recommended procedure for obtaining height and weight?*

    A: Before participants fill out the questionnaire, you should make scales available. Ask participants to weigh themselves without shoes and be sure to insure privacy. Tape a yardstick to the wall so that participants can measure their height, again without shoes.

23. Q: *How do you batch process HRA?*

    A: Questionnaires should be edited for accuracy and then transcribed into a machine readable format. Each questionnaire is entered on an 80-column card (or card image if tape is used). You may want to "verify" keypunched entries by entering them a second time and comparing for consistency with the first entry.

MATHEMATICAL CALCULATIONS:
ADDING THE RISKS

There are only a few things that you will need to know in order to be able to understand and explain how HRA's are calculated. Specifically, these calculations are based upon:

1. 10-year projections of U.S. mortality data by age, race and sex
2. relative risk data obtained from epidemiologic studies
3. prevalence data (e.g., amounts of smoking and drinking) by age/race/sex

Let's use the example from our sections on introduction and interpretation to look more closely at the calculation of an appraised age and an achievable age (pages 16-17). This example shows a 45-year-old white man with an appraised age of 49.7 and an achievable age of 43.4.

In the HRA database, relative risk and prevalence data are combined as risk multipliers (or risk factors) for conditions related to the major causes of death for each age, race and sex group.

Determination of Cause of Death

The Centers for Disease Control has 10-year projections for the 12 leading causes of death by age(10-75)/race(black and white)/sex groups. These projections predict the expected number of deaths in 100,000 people of a specific age/race/sex group. For example, if you observe 100,000 45-year-old white men for a 10-year period, you could expect these numbers of deaths:

Arteriosclerotic heart disease	2654
Lung cancer	667
Cirrhosis of the liver	415
Suicide	273
Stroke	252
Non-motor vehicle accidents	242
Motor vehicle accidents	236
Intestinal cancer including rectal cancer	165
Chronic bronchitis and emphysema	132
Pneumonia	99
Homicide	99
Diabetes	87
All other causes	2052
All causes of death	7373

Conditions/Risks Associated With Each Cause of Death

For each cause of death there are conditions (technically called risk indicators) that increase or decrease the risk associated with each cause. For example, the conditions associated with arteriosclerotic heart disease are shown in column (2) below:

(1) Cause	(2) Condition	(3) Appraised	(4) Partial Risk
Arteriosclerotic	BP-Systolic	150	1.0
Heart Disease	BP-Diastolic	95	1.4
	Diabetes	Not diabetic	0.9
	Weight	185	1.0
	Exercise	Minimum	1.0
	Smoking	Still smokes 20+	1.5
	FH/Heart	Yes	1.2

Under the "appraised" column (3), specific information about the participant is listed for each condition from the questionnaire. The risk multiplier associated with each condition is listed under "partial risk" (column 4). If this number is greater than 1.0, this condition is causing the person's risk to be above average; if less than 1.0, the person has below-average risk.

Total Risk Calculation

To calculate total risk, list the conditions contributing to total risk along with the partial risk. Then form two columns with the first called Multiplication and the second called Addition. For each partial risk 1.0 or greater, place 1.0 in the multiplication column and any amount over 1.0 in the addition column. For partial risks less than 1.0, place the value in the multiplication column only.

Condition Total Risk	Partial Risk	Multiplication	Addition		
BP Systolic	1.0	1.0	0		
BP Diastolic	1.4	1.0	0.4		
Diabetes	0.9	0.9	0		
Weight	1.0	1.0	0		
Exercise	1.0	1.0	0		
Smoking	1.5	1.0	0.5		
FH/Heart	1.2	1.0	0.2		
		0.9	+	1.1	(=) 2.0

Multiply all numbers in the multiplication column together (0.9) and add all numbers in the addition column (1.1) and then add these two figures together. In the example, the total is 2.0. This is the total risk. Multiply the total risk by the average expected mortality (2654) to obtain the total deaths you would expect from this cause of death given these conditions (2654 x 2.0 = 5308). See Table 1 for a detailed example of this procedure. Note: If one of the partial risks for blood pressure is less than 1.0, the lower risk should be discarded - only using the higher partial risk. The only other exception to this calculation method is in the case of rectal cancer. The partial risk for the rectal exam should be ignored while first calculating the composite risk for the

TABLE 1

COMPUTATION OF HEALTH RISK APPRAISAL

Case xx8888

Cause of Death	Average Expected Mortality	Condition	Reply	Risk Factor from Tables	Risk Factor		Total Risk	Appraised Present Risk
					X	+		
1. Arterio-	2654/	B. P.-s	150	1.0	1.0			
sclerotic heart	100,000	B. P.-d	95	1.4	1.0	0.4		
disease		diabetes	no	0.9	0.9			
		weight	185	1.0	1.0			
		exercise	min	1.0	1.0			
		smoking	+20	1.5	1.0	0.5		
		FH	yes	1.2	1.0	0.2	2.0*	5308*/ 100,000
2. Motor	236/	alcohol	7-24	2.0	1.0	1.0		
Vehicle Accidents	100,000	miles/yr	15,000	1.5	1.0	0.5		
		seatbelt	10%-24%	1.0	1.0			
		drugs	rare	0.9	0.9		2.4	566/ 100,000

Example 1: Arteriosclerotic Heart Disease
          Low risk factors = multiply items less than 1 in "X" column   = 0.9 (a)
          High risk factors = add factors in "+" column = 0.4 + 0.5 + 0.2 = 1.1 (b)
                                                (a) + (b)   Sum = 2.0 Composite (or total) Risk Factor (c)

Average Risk 2654 X Composite Risk Factor 2.0 = 5308 Appraised (Present) Risk (d)

Example 2: Motor Vehicle Accidents
          Low risk factors = multiply factors less than 1 in "X" column = 0.9 (a)
          High risk factors = add factors in "+" column = 1.0 + 0.5   = 1.5 (b)
                                                (a) + (b) Sum = 2.4 Composite Risk Factor (c)

Average Risk 236 X Composite Risk Factor 2.4 = 566.4 Appraised (Present) Risk (d)

*The reason that these numbers are slightly different than our printout is because the computer program carries the fraction to the fourth place.

other two factors (growth in rectum and blood in stool). Then multiply the partial risk for the rectal exam by the composite for the other two factors. This gives the total risk for rectal cancer.

Determination of Appraised and Achievable Age

Once you have calculated the number of deaths for all the leading causes of death, add all totals together. This is the expected number of deaths per 100,000 45-year-old white men with the same characteristics as the person in the sample. To calculate the appraised age, use the charts showing by race/sex group, the average total expected deaths per age. An example is given in Figure 1. If total expected deaths were 11,191, this person would have an appraised age of just under 50.

Now you assume the person has followed recommendations given on the risk appraisal printout and has changed unhealthy behaviors. You can then recalculate to obtain a new total number of deaths (i.e., 6384). Then use Figure 1 to find the person's achievable age (approximately 43.5).

Age, Race, Sex Calculations

The final two graphs on the following pages (Figures 2 and 3) provide a visual description of the differing 10-year death probabilities for black and white males and females, aged 10 through 75. The appraised and achievable ages for races other than black or white are derived from data on white males and females.

FIGURE 1

PROJECTED DEATHS PER 100,000 PERSONS
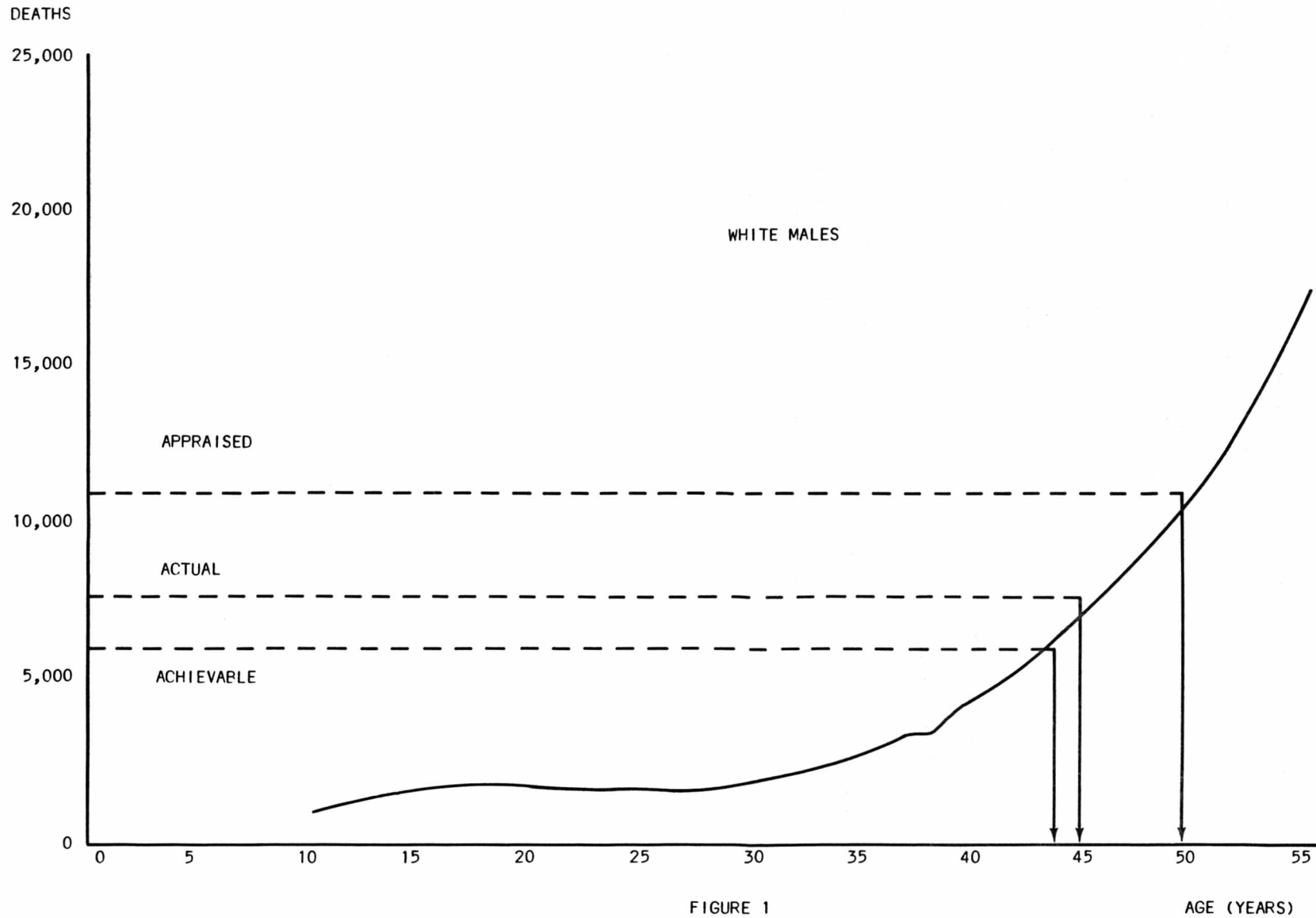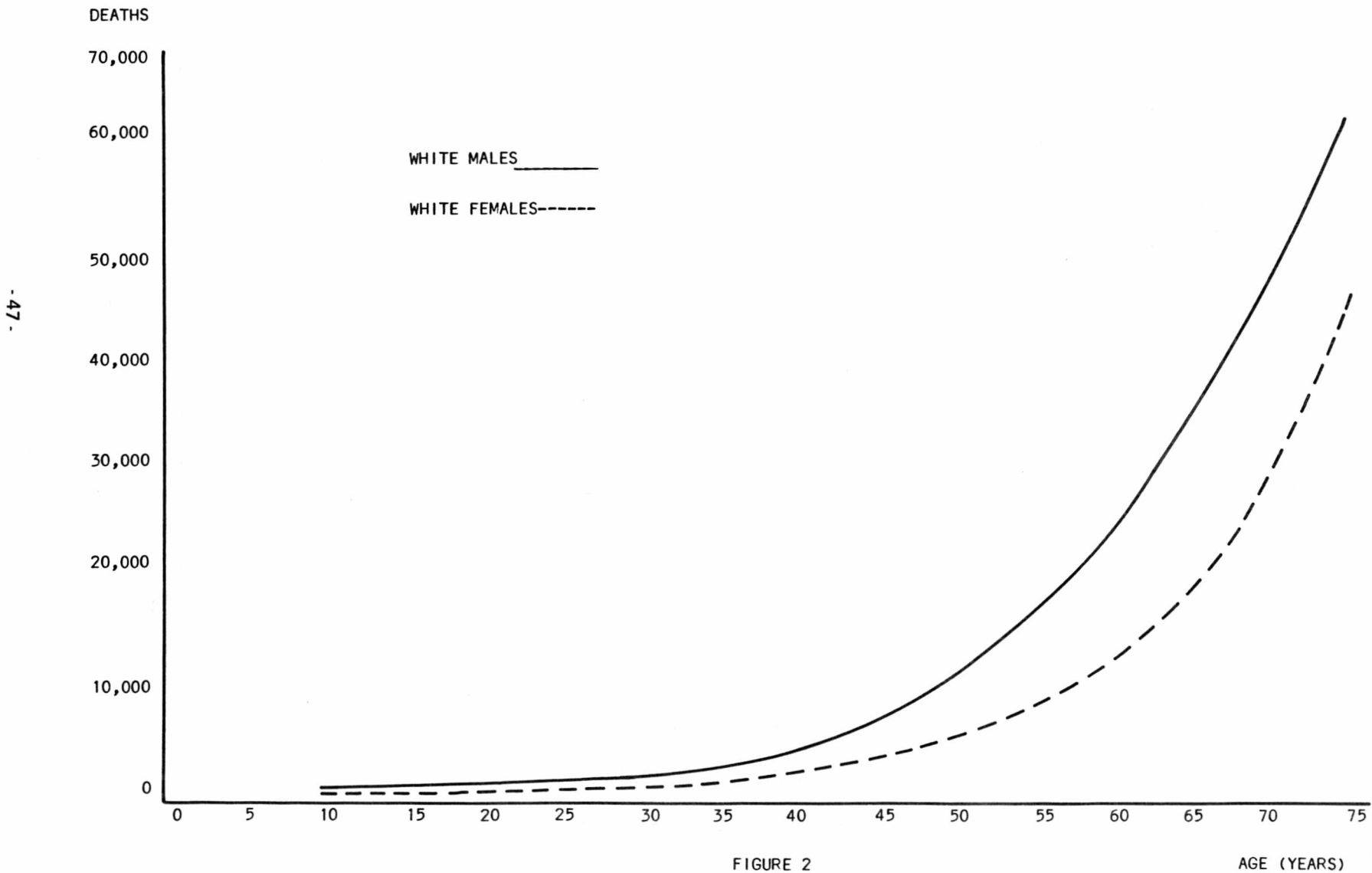
IN THE NEXT 10 YEARS

BY AGE/RACE/SEX

FIGURE 2

- 47 -

PROJECTED DEATHS PER 100,000 PERSONS

IN THE NEXT 10 YEARS

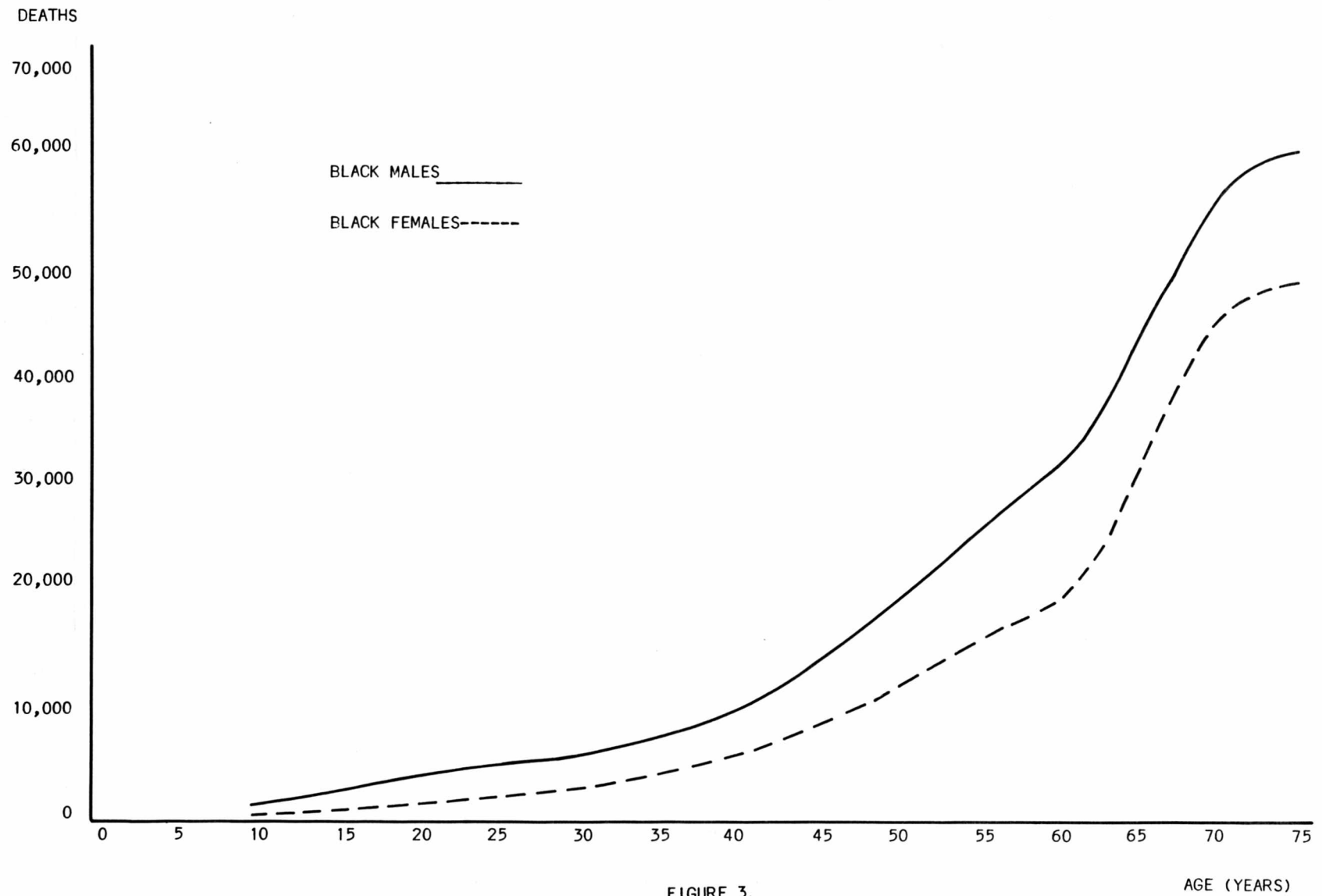BY AGE/RACE/SEX

DEATHS

BLACK MALES_____

BLACK FEMALES------

FIGURE 3

AGE (YEARS)

APPENDIX

GLOSSARY

ACHIEVABLE AGE: An estimated "health age" a person can achieve by improving certain health behaviors.

APPRAISED AGE: An estimated "health age" taking into account how some health behaviors affect total health and life expectancy.

CAUSE OF DEATH: Morbid conditions or injuries that either result in or contribute to death.

COMPOSITE RISK FACTOR: Total risk factor calculated from the partial risk factors assigned to each condition affecting the leading causes of death (referred to as "total risk" on the printout).

CONDITION: Circumstances that precede disease or one of the leading causes of death. Synonym for precursor or risk indicator. Some of the health risk appraisal questions are not related specifically to behavior and its relation to disease, but rather to actions or things we can do to detect disease early, for example, how often women examine their breasts or have a Pap smear. These are not actually disease precursors but screening devices for early detection.

DATABASE: A collection of information organized and presented to serve a specific purpose.

HEALTH EDUCATION: Any combination of learning experiences designed to facilitate voluntary adoptions of behavior conducive to health.

HEALTH PROMOTION: The process of advocating health in order to enhance the probability that personal (individual, family and community), private (professional and business), and public (Federal, State and local government) support of positive health practices will become a societal norm.

HEALTH RISK APPRAISAL (HRA): The generic term applied to methods of objectively estimating and describing an individual's chances of becoming ill or dying from selected causes within a defined period of time.
OR
HEALTH RISK APPRAISAL (HRA): Evaluation of an individual's lifestyle/health behaviors, estimation of his/her risk of death and/or illness, and estimation of potential reduction in risk based on epidemiologic data, mortality statistics, and actuarial techniques. Feedback is given based on his/her current and achievable risks.

LIFESTYLE: Activities over which a person usually has some control, e.g., alcohol use, eating and exercise habits.

PARTIAL RISK: The value assigned to each health habit or condition that can lead to a major cause of death. All partial risks of 1.0 are average. Numbers higher than 1.0 indicate higher-than-average risk; numbers lower than 1.0 (decimal numbers) indicate a lower-than-average risk.

PARTICIPANT: The individual whose health risks are being appraised and who may, if appropriate, participate in some components of a risk reduction program.

PRECURSOR: Condition or risk indicator associated with a particular disease. A precursor can be a habit or personal practice (smoking) that precedes a given disease (lung cancer).

PROVIDERS: Individuals, institutions or organizations providing risk appraisal/reduction programs to individuals or groups of individuals.

RISK: Hazard, chance of bad consequences, exposure to mischance.

RISK APPRAISAL INSTRUMENTS: Printed or computer-assisted questionnaires used to identify an individual's health risks.

RISK FACTOR: Numeric value applied to each risk indicator. The value of 1.0 as a risk factor for a given precursor is average. Therefore, any risk factors greater than 1.0 indicate greater-than-average risks, and any risk factors under 1.0 indicate lower-than-average risk. Synonymous with risk multiplier.

RISK INDICATOR: Conditions associated with a particular disease or leading cause of death, for example, cigarette smoking, high blood pressure, alcohol use, seat belt use, etc. See also precursor.

RISK MULTIPLIER: Synonymous with risk factor.

RISK REDUCTION PROGRAMS: Organized activities to reduce risk through sustained behavior change. These programs can be of long or short duration and of a broad or specific nature.

TOTAL RISK: The combination of two or more partial risks for one of the leading causes of death. The numbers are read the same as for partial risk.

USER: Health professional who uses the health risk appraisal system in his or her practice or health promotion setting. Doctors, nurses, health educators and physical fitness instructors fall into this category.

WELLNESS: Opposite of sickness. Moving toward optimum health.

I understand that the CDC Health Risk Appraisal asks questions about my health habits. My health habits may add to or lower my risks or chances of getting sick or hurt. All of my answers will be kept private. A number rather than my name will be used to identify my health risk appraisal form.

I understand that my answers will be compared to others of my age, race, and sex by using a computer. The computer printout will give only estimates of my health risks. My risks will be explained to me and someone will answer my questions.

After I learn what my health risks are, then I can decide if I want to change any of my health habits.

I understand that health risk appraisal does not discover illness or take the place of seeing a doctor.

I understand that my answers will be kept with those of others who have filled out a health risk appraisal form so that services to help people lower their health risks can be planned.

I understand that I am free to drop out of this program at any time.

Name _____

Date _____

Health Risk Appraisal Distress Scale (S-Scale)

The answers to six questions on the HRA questionnaire are used to help compute whether the participant is an above-average, average, or below-average risk for committing suicide. A certain number of risk points are assigned for each answer. An average value is assigned for unanswered questions. The risk points are added together and the total is then compared to the table on the bottom of the page to determine which risk value to assign. The questions and risk points were primarily derived from a suicide risk scale developed by Calvin Frederick (5) at the National Institute of Mental Health.

Distress Rating

Q.19 Physical Health - corresponds to medical status on Frederick scale.

		Points
1.	Excellent	1
2.	Good	2
3.	Fair	3
4.	Poor	5
5.	Other answers	3

Q.20 Life Satisfaction - relates to several depression items on Frederick scale - behavior symptoms, agitated mood, self-blame, and personal interaction.

1.	Mostly satisfied	1
2.	Partly satisfied	5
3.	Mostly disappointed	9
4.	Not sure	5
5.	Other answers	5

Q.21 Social Ties - corresponds to personal resources and personal interaction.

1.	Very strong	2
2.	About Average	5
3.	Weaker than average	8
4.	Not sure	5
5.	Other answers	5

Q.22 Hours Sleep - relates to behavior symptoms.

		Points
1.	6 hours or less	4
2.	7 hours	2
3.	8 hours	2
4.	9 hours or more	4
5.	other answers	3

Q.23 Loss or Misfortune - relates to stress and rejection on Frederick scale.

1.	Yes, one loss	6
2.	Yes, two or more	9
3.	No	3
4.	Other answers	5

Q.32 Marital Status - corresponds to marital status on Frederick scale.

1.	Single	2
2.	Married	1
3.	Separated	4
4.	Widowed	5
5.	Divorced	4
6.	Other answers	3

Above-average risk	27 - 40 points
Average risk	18 - 26 points
Below-average risk	10 - 17 points

Frederick, C.J. Crisis Intervention and Emergency Mental Health. In: W.R. Johnson, ed. Health in Action. New York: Holt, Rinehart and Winston, 1977:376-411.

DESIRABLE WEIGHTS FOR PERSONS OF MEDIUM FRAME
RECOMMENDED BY 1959 METROPOLITAN LIFE INSURANCE TABLES*

HEIGHT (without shoes)	WOMEN	MEN
4'4"	92**	
4'5"	94**	
4'6"	97**	
4'7"	99**	
4'8"	102	
4'9"	104	112**
4'10"	107	115**
4'11"	110	118**
5'0"	113	121**
5'1"	116	124
5'2"	120	127
5'3"	123	130
5'4"	128	133
5'5"	132	137
5'6"	136	141
5'7"	140	145
5'8"	144	149
5'9"	148	153
5'10"	152	158
5'11"	155**	162
6'0"	159**	167
6'1"	163**	171
6'2"	167**	176
6'3"		181
6'4"		186**
6'5"		191**
6'6"		197**
6'7"		202**

*Note: Desirable weights will vary up to ±10% depending on actual frame size.

**Extrapolated from Metropolitan Life data.

HRA PROGRAMMED RECOMMENDATIONS

PRECURSOR	CONDITION	RECOMMENDATION
Weight	3%-15% overweight	Lose 100% of excess weight
	16%-40% overweight	Lose 85% of excess weight
	41% or more overweight	Lose 75% of excess weight
Tobacco	Smoker	Stop smoking
Alcohol	41 or more drinks/week	Stop drinking
	7-40 drinks/week	3-6 drinks/week
Drugs/Medication	Almost daily	Sometimes
	Sometimes	Rarely or never
Seat Belt Use	Less than 75%	75%-100%
Physical Activity	Undesirable (level 1)	Sedentary exercise program
	Minimum (level 2)	Exercise program
Diabetes	Uncontrolled	Controlled
Annual Rectal Exam	No	Annual exam after 40
Systolic Blood Pressure	141mm or more	140mm
Diastolic Blood Pressure	89mm or more	88mm
Fasting Cholesterol Level	(no recommendations)	
S-Scale (Suicide Risk)	Above-average risk	Risk reduction program
Lifestyle (Homicide)	(no recommendations)	
Pap Smear	Less often than annual	As recommended*
Breast Exam	No self-exam	Self-exam*

NOTE - The following message is printed for participants who have none of the conditions shown above:

> All lifestyle factors analyzed by this computer program are within accepted limits, and therefore no changes have been recommended.

*The American Cancer Society recommendations for early detection of cancer should be given to participants with their printout.

PRECURSORS TO THE THIRTY-TWO SPECIFIC CAUSES
OF DEATH USED BY THE CDC HEALTH RISK APPRAISAL

CAUSE	PRECURSOR
1) Cancer of the Esophagus	
2) Cancer of the Stomach	
3) Cancer of the Large Intestine and Rectum	Rectal Growth, Rectal Bleeding, Rectal Exam
4) Cancer of the Lung	Smoking
5) Cancer of the Breast	Family History, Self-Exam
6) Cancer of the Cervix	Hysterectomy, Pap Smear
7) Cancer of the Corpus	
8) Cancer of the Ovary	
9) Cancer of the Prostate	
10) Cancer of the Bladder	
11) Cancer of the Brain and CNS	
12) Lymphosarcoma-Hodgkin's Disease	
13) Leukemia	
14) Diabetes	Family History, Weight
15) Anemias	
16) Alcoholism	
17) Rheumatic Heart Disease	
18) Hypertensive Heart Disease	Blood Pressure, Weight
19) Arteriosclerotic Heart Disease	Blood Pressure, Cholesterol, Diabetes, Weight, Exercise, Smoking, Family History
20) Vascular Lesions Affecting the CNS	Blood Pressure, Cholesterol, Diabetes, Smoking

21)	Diseases of the Arteries	Blood Pressure, Cholesterol, Diabetes, Smoking
22)	Pneumonia	Alcohol, Smoking, Chronic Bronchitis or Emphysema
23)	Bronchitis-Emphysema	Smoking
24)	Cirrhosis	Alcohol
25)	Nephritis-Nephrosis	
26)	Complications of Pregnancy	
27)	Abortions	
28)	Congenital Circulatory Defects	
29)	Motor Vehicle Accidents	Alcohol, Miles Driven/Year, Seat Belt Use, Drugs
30)	Non-Motor Vehicle Accidents	
31)	Suicide	Alcohol, Physical Health, Life Satisfaction, Social Ties, Sleep, Recent Misfortune, Marital Status
32)	Homicide	Violent Arguments, Lifestyle

REFERENCES

1. Ardell DB. High level wellness: an alternative to doctors, drugs and disease. New York: Bantam Books, 1979.

2. Ardell DB, Tager MJ. Planning for wellness: a guidebook for achieving optimal health. Portland, Oregon: Wellness Media, Ltd., 1981.

3. Breslow L, Somers AR. The lifetime health-monitoring program: a practical approach to preventive medicine. New England Journal of Medicine 1977; 296:11.

4. Dunton S. A basic introduction to the health hazard appraisal. In: American Hospital Association. Promoting Health 1981;2:4.

5. Frederick CJ. Crisis intervention and emergency mental health. In: Johnson WR, ed. Health in action. New York: Holt, Rinehart & Winston, 1977, 376-411.

6. Gesner N. Derivation of risk factors from comparative data. Proceedings of the Seventh Annual Meeting of the Society for Prospective Medicine. Bethesda, Maryland: Health and Education Resources, 1970.

7. Goetz AA, Duff JF, Bernstein JE. Health risk appraisal. In: Parkinson RS, ed. Managing health promotion in the workplace. Palo Alto: Mayfield Publishing Co., 1982, 127-132.

8. Hall J, Zwemer J. Prospective medicine. Indianapolis: Methodist Hospital of Indiana, 1979.

9. Health and Welfare Canada. Evalu*life user's guide. Ottawa: Health and Welfare Canada, 1981.

10. Health Services Research Center. Description, analysis and assessment of health hazard/health risk appraisal programs. Chapel Hill: University of North Carolina, 1981.

11. Metropolitan Life Insurance Company. Desirable weights for men and women. New York: Metropolitan Life Insurance Co., 1959.

12. New York State Health Department. Health risk appraisal: a guide to appraisal introduction and interpretation. Albany: New York State Health Department, 1982.

13. Robbins L, Hall J. How to practice prospective medicine. Indianapolis: Methodist Hospital of Indiana, 1970.

14. Sachs JS et al. Reliability of the health hazard appraisal. American Journal of Public Health 1981; 70:730-32.

15. Taylor RB et al. Health promotion: principles and clinical application. New York: Appleton-Century-Crofts, 1982.

16. Whorton MD, Davis ME. A perspective on health intervention programs in industry. In: Parkinson RS, ed. Managing health promotion in the workplace. Palo Alto: Mayfield Publishing Co., 1982, 133-43.