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# Nevada's Health and Nutrition Needs - Preferred Methods of Health Information Delivery

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# NEVADA'S HEALTH AND NUTRITION NEEDS - PREFERRED METHODS OF HEALTH INFORMATION DELIVERY

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## Section I: Introduction

University of Nevada Cooperative Extension is a publicly funded, nonformal, educational system that links federal, state and local resources and activities. Its mission is to discover, develop, disseminate, preserve and use knowledge to strengthen the social, economic and environmental well-being of the public through research-based educational programs focused on local needs. As the needs, issues and situations change, programs must change as well. Identifying health issues of concern to the public is key. Obtaining public input on effective strategies that address changing personal behaviors and attitudes is essential.

Continuing with the practice of periodic needs assessment, the Cooperative Extension Health and Nutrition team met in fall of 2005 to direct that endeavor. New faculty included the Western Area Nutrition Specialist (designated team chair), with the State Nutrition Specialist and Exercise Specialist joining the team early in the process. Later additions to the team included the new Southern Area Director, program assistants and a representative from the University of Nevada School of Medicine.

The initial meetings permitted the sharing of information from previously conducted needs assessments completed in 1993 and 2000. Early discussions included current and ongoing health and nutrition Extension programs, state demographics and recognized public health needs. Subsequent meetings in 2006 formalized the team's objective of identifying public preference for methods of delivery of health and nutrition information. Principles of the Logic Model directed the team's course of action:

1. Situation analysis
2. Priority setting
3. Action plan and timetable
4. Implementation steps (inputs, outputs, outcomes and impacts)
5. Evaluation

In this report every effort has been made to cite the most recent statistics available. Due to variations in confirmation of national and state data release dates, years cited may vary from 2004 to 2009. The names used to identify ethnic and racial groups reflect the terms provided by the source data and therefore may vary throughout the document.

Similar to the scenario found in 1993, the face of Nevada continues to change. Nevada has been the fastest-growing state in the nation for more than 20 years. According to the U.S. Census Bureau, the population of Nevada increased 50 percent between 1980 and 1990, 66 percent between 1990 and 2000, and 30 percent between 2000 and 2008. Approximately 90 percent of the state's 2,600,167 residents (2008 U.S. Census Bureau estimate) live in or near Las Vegas or Reno, with the Las Vegas area having the largest share (76.8 percent). The total population of the state is expected to reach more than 3 million by 2015.

Population Specifics (2006)

- Of the total population, 49 percent are female, and 51 percent are male.
- Race estimates statewide are 77.0 percent White, 7.6 percent Black, 1.2 percent Native American, 6.1 percent Asian, 0.5 percent native Hawaiian and other Pacific Islander, 7.6 percent "Some other race," and 2.2 percent "Two or more races."
- The proportion of persons of Hispanic ethnicity was estimated to be 24.3 percent for 2007. The Hispanic population grew more than 500 percent between 1990 and 2008. It grew an estimated 65 percent between 2000 and 2008.
- Those over the age of 65 are estimated to be 11.1 percent of the total population.

Demographics and Health Status

Demographic indicators have been found to predict the health status of people. People with low income or limited education tend to have higher rates of health risk behaviors. These groups are also less likely to have health insurance coverage or to have regular physician check-ups. Additionally, research has found a disparity between the health of minority populations and the general population.

- Nevada's January 2009 unemployment rate was 9.4 percent compared with a national rate of 7.6 percent for the same month, and a 214 percent increase over Nevada's January 2006 rate of 4.4 percent. The poverty rate was 10.6 percent in 2007 (Census Bureau).
- In 2007, 17.9 percent of Nevada's total population had no health insurance compared with a national average of 15.3 percent, ranking the state 23rd in the country in uninsured population.

- In 2007, 14 percent of related children lived at or below the poverty level. Forty-one percent of Nevada's children live in low-income families, less than 200 percent of the poverty level (National Center for Children in Poverty).

These changes drive the need for the current needs assessment. The purpose of this document is to assess Nevadans health concerns and preferred methods of receiving health information (presented in Section II) and to update issues relevant to current Extension programming. Specific sections address the top three unmet needs identified in both 1993 and 2000: changing personal behaviors (Section III); preventing chronic disease throughout the life cycle (Section IV); and physical, mental and emotional health (Section V).

This document's audiences include Extension personnel, stakeholders, health professionals and policy makers. It is the intent of the authors that this information be used to assist and direct program development and delivery methods, as well as to inform and guide public policy for the ultimate benefit of the Nevada public.

## Section II. Conducting the Statewide Survey

### Introduction

The perceived needs and priorities of the community are an essential component guiding Cooperative Extension faculty in developing meaningful programs. Furthermore, the effectiveness of a health-promotion campaign is dependent upon addressing the interests and needs indicated by the target population. Therefore, a primary challenge for Cooperative Extension faculty is to identify the target population's health concerns, current health practices, as well as what factors are perceived to inhibit or promote the adoption of healthful behaviors.

An equally daunting challenge for Cooperative Extension educators is reaching their intended audience. The rapidly evolving area of health information and communication technology has dramatically changed how we live and learn. From 2003 to 2009, the number of U.S. households with Internet access increased from 66 percent to 80 percent. Yet, access to Internet information in not universal and is unsuitable for specific audiences. Internet access is lowest in Hispanic and Black/African American homes; where the head of the household has not completed a high school education; in rural areas; and in the Southeast. In addition, studies indicate both general literacy and health literacy are inhibitors of health communication and education. Given the difficulty of delivering health information to people with low literacy skills, the scope of the problem is documented by the findings that 14 percent of the U.S. population and 16 percent of the Nevada population were classified as illiterate in 2003; 16 percent of the U.S. population was below basic health literacy. In *Healthy People 2010,* health literacy is defined as: "The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."

Health information should be disseminated to a target audience via the method most preferred by that audience. Historically, Cooperative Extension educators have relied largely on printed materials such as brochures to deliver health information. The best modality to promote and conduct health campaigns may differ considerably based upon the target population and the health topics promoted.

Commonly used methods for conducting community analysis (focus groups, mailed surveys, and phone interviews) can introduce significant bias. Furthermore, data collected through key informants can intentionally and unintentionally be skewed by the informant's perspectives.

Although expensive, direct in-person structured interviews with the target population provide enhanced understanding of the quantitative data. Convenience sampling was selected for this study to reduce data collection costs and has proven to capture comments successfully from hard-to-reach populations. Therefore, the study sought information directly from adult Nevadans. A survey was conducted face-to-face in a convenience sample of the state population. Since developing effective health promotion campaigns requires an understanding of the needs and preferred methods of communication for a target audience, the study aims were as follows:

1. Identify what health practices Nevada residents are interested in incorporating into their lifestyle, what are their perceived barriers, and what are their preferred methods of obtaining information/support to achieve or maintain their health practice goals.

2. Determine if there are subpopulations of Nevadans that differ in health practices, perceived barriers and preferred methods of obtaining information/support.

## Method

### Theory-base of the Study

The survey questionnaire (Appendix A, pp. 56 - 58) evaluated the three components of the Health Belief Model proposed by Hochbaum. The respondents identified their current healthful behaviors and the benefits of these behaviors. Self-efficacy was elicited by asking what other health behaviors they could alter and the factors which would promote this change. A logic model was created to guide the study framework; inputs, outputs, and outcomes were designated (Appendix B, Table 1, p. 60).

### Study Design and Participant Recruitment

A cross-sectional study design was used with a concurrent nested research strategy, in which both quantitative and qualitative data were collected simultaneously in a direct in-person structured interview. Study participants were recruited and interviewed at high pedestrian traffic locations such as post offices, grocery stores or hardware stores. Potential participants were verbally asked to participate with the inclusion criteria verified before initiating the interview (Appendix A, p. 56). Participants were required to be a State of Nevada resident and over 21 years old. Exclusion criteria included nonresidents of Nevada, under the age of 21, inability to communicate in English, and relatives, employees or students of the investigators. Upon

completion of the survey, participants received a nominal gift worth less than $10 and the University of Nevada Cooperative Extension contact information. The study was approved by the Social Behavioral Institutional Review Board of the University of Nevada, Reno.

The study sample was obtained through stratified, randomized census tract selection. All Nevada census tracts were categorized based on rural vs. urban and low (less than $40,000), medium ($40,000-60,000) and high (over $60,000) median annual household income. Then, 23 census tracts were randomly selected from the stratified census tracts. However, the percentage of census tracks selected within each category differed to allow oversampling of rural and low-income Nevada residents. Approximately 15 interviews were conducted within each census tract.

Four major methods of information delivery (group education, printed materials, Internet, and media) were ranked 1 through 4 in order of preference. Answers provided as no, a check mark, or omitted were tabulated as missing. A method was considered of "interest" by the respondent if it was ranked first or second and/or was marked as of interest on the study form.

In this study, an urban resident was defined as a person residing in one of five major cities: Las Vegas, Henderson, Reno, Sparks and Carson City. The U.S. Census Bureau used a more expanded definition for urban residence, not based on counties. Populations more than 50,000 living in urbanized areas and places (cities, towns, village, etc.) and populations more than 2,500 outside of those urbanized areas are defined as urban by the Census Bureau. Because cities and towns in Nevada have different characteristics from major urban cities, their residents were categorized as rural based on county density where county populations were less than 50,000.

**Survey Instrument Development**

Based on the study objectives, the survey questionnaire consisted of three sections for respondent input: 1) interest in and rating of four major methods of health information delivery, 2) four open-ended qualitative questions and 3) demographic information (age, gender, race, etc.). Respondents were allowed to indicate interest in more than one mode. The interviewer asked each survey question and recorded answers on the survey form. A reference sheet with pictures depicting the methods of information delivery was provided to the participant to assist in rating communication preferences. Pilot testing of the questionnaire resulted in revision of the

instrument. The final survey questionnaire (Appendix A, p. 57) was designed to be completed within 5-10 minutes.

University of Nevada, Reno Cooperative Extension staff and university students conducted all of the interviews. Training was provided in person or by video conference. Written interview instructions were distributed.

## Statistical Analysis

Descriptive information was evaluated from the quantitative data. Percentages for preferred methods were determined. Frequencies were stratified based on age, gender, race, and urban residence to evaluate if preferred methods for obtaining health information were different between subgroups of Nevadans.

Qualitative data was reviewed for major themes regarding 1) what health practices Nevada residents are interested in incorporating into their lifestyle, and 2) what residents perceive as barriers and support systems to achieve or maintain their health practice goals.

To determine what variables predict the top two preferred methods, the Multinomial Logistic Regression Model was used. Using multinomial logistic regression, profiles can be created of individuals who are most likely to be interested in a specific method, and intervention strategies can be planned accordingly. Variables placed into the model included age, race, gender, rural vs. urban (or county) and number in household.

## Results

There were 341 adult residents of Nevada who participated in the study. Three participants elected not to complete the survey or their data was not complete; therefore they were not included in the final analysis. The study sample of 338 adults was generally representative of the state population (Appendix B, Table 2, p.61). There was an oversampling of Native American Indians and Black/African American individuals with undersampling of Asians, Whites and those of Hispanic ethnicity. Rural Nevada residents were oversampled; the rural sample percent was more than three times the percent of the Nevada state population (38.5 percent in the sample versus 11 percent in the state).

The percentages of subjects citing their first choice method for receiving health information were 32.8 percent Internet, 32 percent printed material, 16.6 percent media and 13 percent group education. The subjects' second preferences were 28.7 percent media, 25.4 percent printed material, 18.3 percent Internet, and 10.7 percent group education (Appendix B, Table 3, p. 62 and Appendix C, Figures 1 and 2, p. 68). Another study goal was to evaluate whether differences existed between subpopulations of Nevadans. First and second choices of preferred methods of information delivery were stratified by residence (rural vs. urban), gender, age (21-40, 41-60 and 61 and older) and race.

With the exception of higher rank percentages for printed materials instead of Internet, no changes occurred when stratified by rural or urban subsamples (Appendix B, Table 4, p. 62). Similarly when divided by service areas designated by Cooperative Extension (Central/Northeast Area, Western Area, and Southern Area), Internet and printed material were the most preferred educational methods, and media and printed material the second preferred methods (Appendix B, Table 5, p. 63). Table 6 (Appendix B, p. 63) presents the reported first- and second-preferred method by county. First- and second-preferred methods of information delivery were also stratified by gender (Appendix B, Table 7, p. 64), age (Appendix B, Tables 8 and 9, p. 64) and race (Appendix B, Tables 10 and 11, p. 65).

The results regarding preferred methods were reinforced by examining the extent to which respondents were interested in each of the categories. Table 12 (Appendix B, p. 65) shows that 72 percent of respondents were not interested in group education, while 62 percent were interested in printed materials. Both Internet and media methods of communication were approximately evenly distributed between those interested and not interested in these methods.

Each of the four main methods of health information delivery was further evaluated by specified submethods. Of note, Table 13 (Appendix B, p. 66) indicates that within printed material mailings, respondents were not interested in mailings (67.5 percent "no") and brochures (79 percent "no"), while monthly newsletters were of somewhat more interest (55 percent "no"). The specific characteristics of preferred printed materials remain to be determined.

In comparison to other races, American Indian respondents indicated a higher interest in printed materials (82 percent "yes," 18 percent "no") and lower for Internet (29 percent "yes," 71 percent "no") (Appendix B, Table 14, p. 66). Respondents that resided in rural areas were

significantly less interested in group education than urban residents (84 percent versus 67 percent) (p-value 0.01), yet no significant difference was observed for printed material, Internet or media. Interest in methods of health information delivery between male and females did not significantly differ, except for media (p-value 0.04) (Appendix B, Table 15, p. 67). The percent of respondents interested in the Internet as a communication mode decreased with age (70 percent down to 32 percent) (Appendix B, Table 16, p. 67). The reverse was seen for printed materials; there was a general trend towards greater interest with older respondents.

A model was created to develop profiles of people who are most likely to be interested in a specific method. Variables placed into the model included: age, race, gender, rural vs. urban (or county) and number in household. Only race (p-value <0.001) and age (0.006) significantly contributed to the model. Urban vs. rural and gender had p-value >0.05. Rural/Urban and county were highly co-linear and therefore both were not included in the model together; regardless of which was placed in the model, these variables remained insignificant.

**Summary of Quantitative Findings**

The statewide survey found Nevada adults were disinterested in group education. This finding was fairly consistent across race, gender, age and place of residence. However, within the group education category, individuals 70 years or older and Blacks were more interested in this mode than other age groups or ethnicities, respectively (Table 14, page 66 and Table 16, page 67), although neither reached a response rate of 50 percent. There was a low interest in group education in Douglas, Elko, Humboldt, Lyon and Pershing counties, resulting in 82-93 percent reporting no interest in group education. In examining urban versus rural preference for this method, there was a slightly higher interest in group education in urban areas, 33 percent versus 16 percent, respectively. Therefore, the traditional use of group education may not be the method to effectively reach most Nevada adult residents. However, this method may still find an audience of those at a particular point in the Transtheoretical (Readiness to Change) Model – those who are ready to change their behavior and are actively seeking education to do so, especially in the urban areas.

Printed material was the preferred method overall. It was listed second among the first- and second-preferred methods. It is possible that this printed material was selected because it is passive; recipients of printed materials do not have to actively seek the information. Printed

materials also allow the recipients to review the information at their leisure and provide a reference source for the future. Similarly, this may explain the interest in Web sites. They do not require traveling or interacting with others and the information can be reviewed at any time and as often as needed for clarification.

Media, specifically TV, was rated as a preferred method. The expense of this mode of delivery will require Cooperative Extension personnel to develop strong partnerships with television stations and collaborations with other groups seeking to deliver health messages.

In general, the preferred mode of information delivery did not differ by rural/urban location and gender. The Multinomial Logistic Regression Model indicated that age and race were predictive factors. Younger respondents rated Internet higher as a preferred method compared to older respondents.

Silk and colleagues (2008) evaluated likeability, attention, understanding and intention to use the information in the future for three modes of education: computer games, Web site, and pamphlets. Among 18-50-year-old females who had participated in a Cooperative Extension education program, Web site was rated significantly higher on attention and intent to use information, but lower for ease of understanding compared to the other methods.

## Summary of Qualitative Findings

The following summarizes responses to the open-ended survey questions.

**Q. What are some good things you do for your health?**

1. The overwhelming response to this question is **exercise**.

Within this exercise category the majority response was **walking** (from regular neighborhood walks, alone and with buddy, to walking dogs and extensive walking while working as a waitress and walking instead of driving).

The next most popular exercise response was **lifting weights/strength training.** One respondent reported “lifting hay.”

Another exercise category was running followed by mention of specific sports activities from riding bikes to snowboarding. These included: basketball, aquasize, aerobics, golf, soccer,

swimming, dance, gardening, yoga, canoeing and tennis. Home activities such as housework, playing with kids and raising three boys also were mentioned.

2. A close second to exercise was the category of **"eating right"** (nutrition).

Respondent comments in the "eating right" category included expressions of positive actions, i.e., foods they reported eating more of, such as eating more vegetables (green vegetables, salads) and fruits. Others mentioned emphasizing oatmeal, fiber, grains, protein, lean meats, chicken, turkey and fish, and whole-wheat products. Several stated they ate more natural and organic foods.

On the other hand, respondents also reported avoiding or lessening the intake of other "negative" foods. These included: fat (saturated and trans), sugar (soft drinks), red meat, carbohydrates, caffeine, cholesterol, and refined and preserved foods. Several mentioned avoiding fast foods and junk foods.

Some respondents stated the good things they were doing included eating programs such as Weight Watchers and Atkins. Others said they were consuming smaller amounts of food, and smaller (more frequent) meals.

3. The next category within "doing good things" was **hydration.** Drinking more water was mentioned by a majority of respondents mentioning hydration.
4. The next category within "doing good things" was **alternative nutrition and supplements**.

This area was mentioned by a measurable, although not a majority, group of respondents. The largest subgroup within this category was vitamins (Vitamin C, multi-vitamins and CoQ10), minerals (calcium) and herbs (ginseng). The next subgroup was supplements (cod liver oil, immune support), teas (specifically green) and juices.

5. A number of respondents reported issues around **smoking** as "doing good things." These fell into the groupings of quitting, trying to quit or never smoking.
6. A strong minority of respondents reported issues around **preventive health/medicine**. Participants mentioned regular check-ups, physician visits, immunizations, and checking blood pressure and blood sugar (diabetes). While some found taking their medications to be a good health practice, others proudly reported taking no medications/ drugs. Dental health (preventive and therapeutic) was also mentioned as well as aspirin therapy.

**Q. What made you decide to do this/these?**

When queried as to why they decide to do good things for themselves, the primary reason fell under the category of *Health and Age Reasons*. "I saw what happened to people who didn't." Within this category, people were either trying to promote health and longevity or avoid illness and the consequences of aging. Some had experienced a health problem themselves (such as diabetes, heart disease, hypertension or cancer) whereas others had a family history of these illnesses. Sixteen percent of respondents reported concerns related to being overweight, with the majority of those comments expressing the need or intent to lose weight. Still others were aware of "Seems like the whole world is trying to be healthier."

There was another group of individuals who had *always practiced a healthy lifestyle* (e.g., exercising or eating right). Their families were role models for healthy living. Others were motivated by their families, particularly their grandchildren.

Lastly, *quality of life* issues served as motivators. "If I don't keep moving, I'll drop." Exercising relieved stress, boredom and loneliness, and increased self-worth.

**Q. If you could, are there other things you would like to do for your health that you're not currently doing?**

1. The overwhelming response to this question also was **exercise**.

Respondents wanted to exercise more, get in shape, get into an exercise regimen, and get into the gym more often. Losing weight also was mentioned by a majority of respondents in the category of things they want to do. Losing weight, maintaining weight loss and avoiding weight gain were mentioned over and over.

Smoking cessation also is a priority, as is eating better, eating more of the "right foods." Within this category respondents wanted to find a job with fewer hours during the day to achieve their health goals while others wanted to vacation more often. A positive attitude was seen as important. "I live to be optimistic." "I do the best I can to think positive, live right and maybe help more people." Another wanted "to avoid spoiling all the things she's doing that are working for her."

Socioeconomic issues arose within this category also. One commented, "I need a better physician; my current one is a 'poor man's' doctor."

**Q. What would help you do this (achieve your goals)?**

The overwhelming response focused on time, especially time for exercising. Family obligations and work appear to interfere with prioritizing and organizing daily life in order to include exercise. As one person stated, she needed to "find a different time to exercise; getting up at 4:45 a.m. gets hard when it is dark and cold." Another "used to make a schedule and need to start again."

Others wanted a partner with whom to exercise, or at least some support. "A mean coach with a big stick" was how one man stated this concept; whereas a woman suggested that "sitting down with someone/nutritionist to help plan meals" would be beneficial. Related issues of personal motivation, commitment and will power also were expressed. As one person stated, I need to "make up my mind to do it."

Financial issues mentioned included money for fruits and vegetables as well as health insurance and doctor visits. Several people noted that there were no gyms or health clubs in their area (specifically, Lovelock, the Paiute Tribe in Lovelock, and Tonopah).

Finally several people mentioned that reading food labels would help them achieve their nutrition goals.

**Q. Is there anything else you would like to say about receiving information?**

The last question in relation to how they wish to receive information and the kind of information resulted in responses that restated economic and access concerns. As one person stated, "Poor people are not reached because we don't have money." Language and transportation barriers were mentioned, as was reaching immigrant populations and programming to the younger population. Several people wanted materials so that information is made "easy for people." "Dummy it down, especially the information at support groups." "You should develop a working relationship with local newspapers. Maybe consider having your own radio station at the university." Write "dietetic material in layman's terms, if (sic) it is too technical, it doesn't apply."

## Study Limitations

An inherent limitation to the study design was self-selection bias due to convenience sampling. The major disadvantage encountered with direct interviews was recruitment of participants. Intercept recruitment appeared to introduce self-selection bias. Potential participants were reluctant to be interviewed. They selected an alternate path for general avoidance; others stated that they lacked time for an interview (it was work lunch break); and others were not comfortable being interviewed in English, they reported second language. Therefore, there was low response rate for Spanish-speaking residents, which resulted in under representation.

A second training session after a few interviews would have identified inconsistencies in data documentation. Some research staff used check marks instead of numbers in ranking the modes of information delivery. Check marks were classified as missing data. Other research staff identified only the first and second preferences; therefore, the third and four preferences were not evaluated.

The random sample of census tracts was modified during the study. Some originally selected census tracts were in unsafe areas and inappropriate places for conducting the survey. This could have resulted in sampling error.

## Section III. Changing Personal Behaviors

In 1993, changing personal behaviors and attitudes was determined to be one of the most important unmet nutrition and health needs in Nevada. In 2000, three major areas of concern were improving food choices, increasing physical activity and reducing tobacco use. Through observations and program evaluations, it is apparent that these remain unmet needs for many Cooperative Extension audiences. Nevada is not alone in this phenomenon.

Despite years of effort nationwide, many nutrition and health interventions have met with limited success even when different program designs and frameworks are employed. For instance, only about one-third of Americans are choosing foods that meet the dietary guideline for fat consumption. This may be due, in part, to the short-term nature of most programs, since time is a crucial factor in the process of behavior change. Additionally, many factors cannot be changed by the individual (e.g. age and gender) or even by the group (e.g. high prices, inaccessibility and isolated communities). These nonmodifiable factors present enormous barriers to change.

Clearly, our program planning must address how individuals make personal behavior changes in the context of their environment. The following section highlights some of our current knowledge about behavior change. Familiarizing ourselves with these issues will serve to enhance program planning and identify achievable program outcomes.

### Behavior Change

Much has been written to describe and predict personal behavior change. Many physiological, psychological, cultural, and social factors influencing behavior change have been identified. Several frameworks (theories and models) designed to capture these influences have been proposed (Table 1, page 17).

Currently, the transtheoretical (Stages of Change) framework suggested by Prochaska and others is being used in many nutrition interventions. While some people wonder if the timeframes mentioned in this framework are appropriate for nutrition behavior change, the focus on individual readiness to change appears to be valid. According to the model, behavior change is preceded by a period of time for thinking and reacting to the suggested changes which in turn

is followed by actual change. Applying social marketing techniques or use of social networks may be appropriate strategies.

The overall model describes five stages - precontemplation, contemplation, preparation, action and maintenance. Each stage involves processes that must occur in order for change to begin and continue (Table 2).

**Table 2 Processes of Change -Thinking and Feeling**

| | |
|---|---|
| • Consciousness raising | ➢ Increases information, understanding and feedback about self and problem |
| • Dramatic relief | ➢ Expresses and experiences feelings about one's problems and solutions |
| • Self-reevaluation | ➢ Assesses one's feelings about oneself with respect to problem |
| • Self-liberation | ➢ Consciously chooses and commits to act; believes in ability to change |
| • Social liberation | ➢ Increases available alternatives for non-problem behaviors in society |
| • Environmental re-evaluation | ➢ Assesses how one's problems affect physical condition and social environment |

**Processes of Change - Doing and Reinforcing**

| | |
|---|---|
| • Helping relationships | ➢ Is open and trusting about one's problems with someone who cares |
| • Reinforcement management | ➢ Rewards self for making changes |
| • Interpersonal systems control | ➢ Avoids those who encourage behavior one is trying to avoid |
| • Counter-conditioning | ➢ Substitutes alternatives for problem behavior |
| • Stimulus control | ➢ Avoids stimuli that produce problem behavior |

During the precontemplation, contemplation and maintenance stages, the individual does much thinking and feeling. During preparation and action, much of the activity involves doing and reinforcement. There is seldom a smooth transition between stages; usually there are lapses into previous stages. These relapses are actually learning experiences that solidify and enhance change. Designing programs that acknowledge, incorporate and facilitate change processes should enhance program outcomes. Furthermore, since thinking is involved with the processes and stages of change, integrating critical thinking skills into program interventions is imperative to changing behaviors.

**Table 1. Select Models for Describing Behavior Change**

| Name | Underlying Principles |
|---|---|
| Theory of Reasoned Action<br>(Theory of Planned Behavior) | The most important determinant of behavior is a person's behavioral intention which is determined by:<br>• the individual's attitude toward performing the behavior (based on beliefs and perceived outcomes),<br>• perceived control and power, and<br>• subjective norm (what others believe and how motivated the individual is to comply). |
| Social Cognitive Theory<br>(Social Learning Theory) | The dynamic interaction of the person, the behavior and the environment in which the behavior is performed.<br>Major components include the environment, the situation (real and perceived), expectations and expectancies about a behavior, self-control, learning from others, self-efficacy, reinforcements, and emotional coping responses. |
| Health Belief Model | Individuals will take action to ward off, to screen for, or to control an ill-health condition if they:<br>• regard themselves as susceptible to the condition;<br>• believe it to have potentially serious consequences;<br>• believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition; and<br>• believe that the anticipated barriers to (or costs of) taking action are outweighed by it benefits.<br>Additional constructs, include, that an individual will take action if they::<br>• possess a sense of self-efficacy or capacity to take action; and<br>• perceive and value cues to action. |
| Social Support Theory | One of several ecological approaches to personal behavior change whereby the positive impact of social networks on individual wellness is acknowledged. |
| Transtheoretical Model<br>(Stages of Change) | This model integrates both the processes and principles of change from across the theories represented above. See below for details. |

## Critical Thinking Skills

Critical thinking is defined as "a process by which a person makes reasonable and reflective decisions focused on what to believe or do." To engage the learner in development of critical thinking skills, the teacher must direct the learning experience to help students:

- become aware
- explore alternatives
- work through a transition
- achieve integration
- take action (may include taking no action)

The intervention becomes learner-led, yet teacher directed. Individuals are assumed to have intimate knowledge about their own situation that, when brought to the attention of the teacher, will allow for personalization of the materials to enhance learning. This is done jointly with the student and teacher acting as a team that analyzes the situation and makes reasonable and reflective decisions. There are no moral judgments made by the teacher about the student. In return, the student is expected to participate in the lesson and to treat the teacher respectfully and with honesty.

## Program Design and Intervention

Consideration of one or more frameworks is helpful in identifying both modifiable and nonmodifiable variables that interact with the audiences at whom educational interventions are directed. For example, looking at the environment in which individuals live and work acknowledges and identifies constraints to interventions. Identification and delineation of both modifiable and nonmodifiable influences enhances meaningful program design, delivery and evaluation. The more one is able to take into account the interacting factors in real-life situations, the more likely one is able to address social and personal problems. Trying to increase opportunities to improve knowledge, attitudes and behavior conducive to healthy lifestyles, while diminishing barriers (physical, social, attitudinal, knowledge related, etc.), should result in maximizing chances to facilitate behavior change.

## Program Evaluation

Community interventions such as health promotion programs need an evaluation component. Evaluation is essential in both determining program outcome and assessing effectiveness of

program components. Evaluations should be developed simultaneously with program design. Use of the Logic Model in program development assures that the evaluation method is integral to the program design and will provide valid assessment of program features and reliable measurement of outcomes and impacts.

**Summary**

At one time, the health and nutrition communities believed that people would change their risky behaviors once they knew the consequences. It is now recognized that changing personal behavior is complex and difficult. While reading the following sections, it will be helpful to consider the many components comprising personal changes, how we can facilitate change and what realistic outcomes are possible from our interventions. Furthermore, opportunities for partnerships and collaborations to address the health and nutrition needs of Nevadans must be sought and developed.

## Section IV. Preventing Chronic Disease throughout the Life Cycle

Over the past 100 years, the leading causes of death in the United States have changed from infectious diseases to chronic diseases. Although the causes of many chronic diseases remain obscure, research has identified individual risk factors that contribute to their development, along with other complex interactions such as genetics, physiological factors and the environment. The leading causes of death in Nevada across all ages are shown in Appendix D (page 69) and may be accessed at http://dhhs.nv.gov/Suicide/DOCS/NV_leading_causes_of_death_2005.pdf.

### Lifestyle Factors Related to Current Extension Programming

In support of *Healthy People 2010* objectives (Appendices E – G, pp.70-74), Extension health-related programming considers the impact certain modifiable risk factors such as food choices, physical activity and tobacco use have on chronic disease development at all stages of the life cycle. This report presents data relative to those chronic disease risk factors and identifies other public health needs from the prenatal period and infancy, through childhood, adolescence, adulthood and older adult years.

### Prenatal Period

Although we think of chronic diseases in terms of adults, new research indicates that such diseases have their origins in fetal development and early childhood. Indeed, the intrauterine environment appears to influence such diseases as hypertension, diabetes and obesity, emphasizing the importance of appropriate and adequate health care at this time.

Nevada State Health Division data showed the rate of prenatal care in the first trimester decreased from 75.3 percent in 1996 to 74.0 percent in 2005. While Whites had the highest prenatal care rate in 2005 at 83.6 percent, followed by Asians at 80.0 percent, other racial/ethnic populations had lower rates. Native Americans had a rate of 67.9 percent, with Blacks at 69.4 percent and Hispanics at 64.2 percent.

### Infancy

#### Infant Mortality

Infant mortality (death of an infant before first birthday) rate (deaths per 1,000 live births) in

the U.S. was 6.87 in 2005, well below the rate of 10.64 in 1985. Nevada's infant mortality rate in 2005 was 5.77 per 1,000. While this rate was below the national rate, it is still above the *Healthy People 2010* goal of 4.5. Among the racial and ethnic populations in Nevada, Blacks had the highest infant mortality rate at 13.67 and Asians had the lowest rate at 4.67 per 1,000 live births.

Low birth weight

Low birth weight (less than 2,500 grams – <5.5 pounds) occurs in about 8.2 percent of all live births nationwide (2005) and greatly affects infant health. This dangerous condition has been linked to several preventable risks, including lack of prenatal care, maternal smoking, exposure to secondhand smoke, use of alcohol and other drugs, and pregnancy before age 18. In fact, smoking during pregnancy is one of the leading, preventable causes of low birth weight infants. Women who smoke during pregnancy double the risk that their child will be of low birth weight. Also, smoking during pregnancy increases the risk of Sudden Infant Death Syndrome (SIDS) in newborns.

In Nevada, the incidence of low birth weight babies was 8.3 percent in 2005. Black infants are more than twice as likely as White babies to be born weighing less than 2,500 grams. In Nevada, Blacks had the highest low birth weight rate at 14.8 percent in 2005.

Low birth weight accounts for 47 percent of all infant hospitalizations and 27 percent for all pediatric stays. Pre-term infants stay in the hospital on average 12.9 days for an average cost of $15,000 as compared to 1.9 days for uncomplicated newborn births (cost of about $6,000).

Births Among Adolescents

Of all births in the U. S. in 2005, 10 percent were to teenaged mothers (15-19 years old). In Nevada, the figure was 10.8 percent. The 2005 birth rate among teens ages 15-19 years in Nevada (50.1/1000) ranks it as 10$^{th}$ highest out of the 50 states. The national average was 40.5/1000. Furthermore, low-income teenagers account for 83 percent of adolescents who had a baby, and 85 percent of those became single parents.

Breastfeeding

*Healthy People 2010* Objectives for breastfeeding are: 75 percent of all newborns will be breastfed; 50 percent of all 6-month-old babies will be breastfed and 25 percent of 12-month-old babies will be breastfed. In 2008, CDC published the rates listed in Table 17 (page 22) for the

U.S. and Nevada. In addition, for the entire state of Nevada, there are no "baby-friendly" hospitals. (The Baby-friendly Hospital Initiative [BFHI] was launched by the World Health Organization and UNICEF in 1991 as a global initiative for improving hospital maternity services to enable mothers to breastfeed babies for the best start in life.) Further, Nevada has less than one International Board Certified Lactation Consultant (i.e., those certified to be practicing the breastfeeding supportive behaviors set forth by the World Health Organization and UNICEF) per 1,000 births, and 0.3 La Leche League groups/1,000 live births.

**Table 17. Incidence of Breastfeeding in U.S. vs. Nevada**

| Outcome | US | NV |
|---|---|---|
| Ever breastfed | 74.2% | 78.3% |
| BF 6 mo | 43.1% | 45.3% |
| BF 12 mo | 21.4% | 18.3% |
| EXCLUSIVE 3 mo | 31.5% | 30.2% |
| EXCLUSIVE 6 mo | 11.9% | 11.0% |

In 2008, CDC also released the results of a survey of maternity practices that support infant nutrition and care in hospitals across the US. Nevada ranks in the lowest quartile overall (figure 3, page 23) and in each of the seven assessed areas (figure 4, page 23).

## Childhood

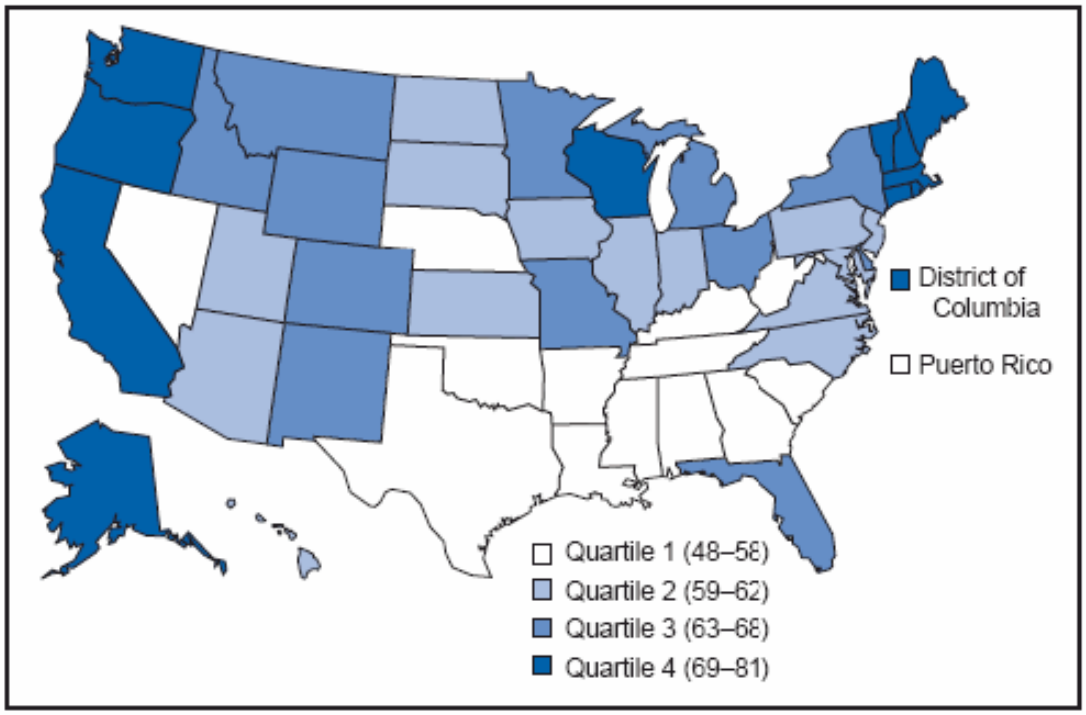
According to the 2008 Robert Wood Johnson Foundation report "A Snapshot of Nevada," Nevada ranks 47$^{th}$ among states for .the general health status of its children. This low ranking holds in every income, education and racial/ethnic group. As for the development of good health practices, childhood is recognized as a critical period. Many health behaviors established in childhood persist in adulthood. It may be easier to prevent initiation of some behaviors, such as poor eating habits and sedentary behaviors, than to intervene once they become established.

### Food Intake

Specific information on nutrient intakes by Nevada children is not available. As with other areas, there is no documented reason to anticipate that national data are not applicable to Nevada children. August 2008 reports from USDA Food and Nutrition Service (FNS) used National

**Figure 3**

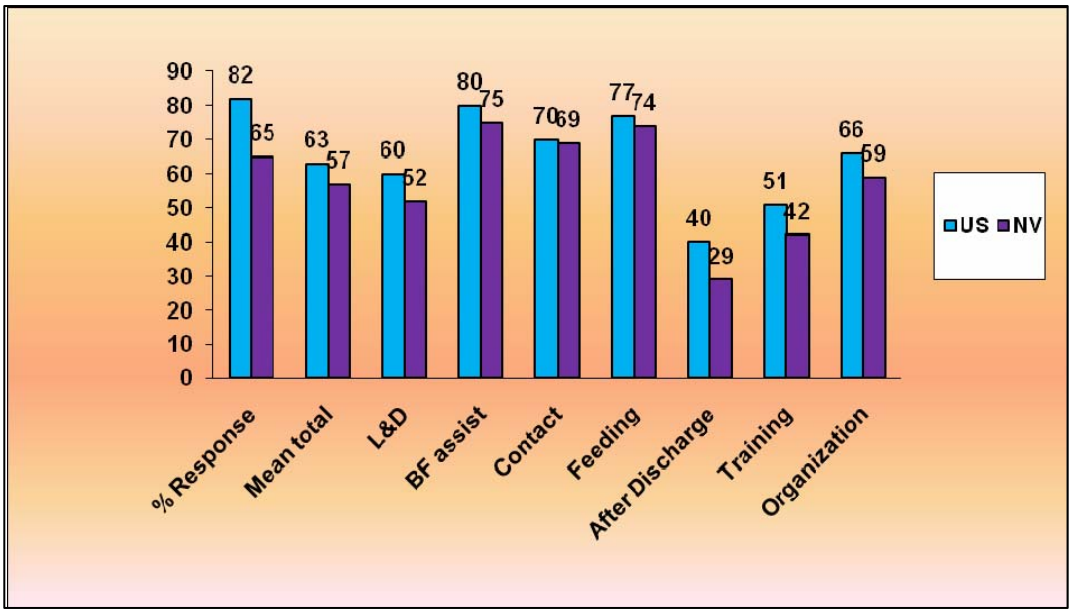
Mean total maternity practice scores, *by quartile – Maternity Practices in Infant Nutrition and Care (mPINC) Survey, United States 2007.




***Maximum possible mean score is 100. Additional information regarding survey questions and scoring is available at http://www.cdc.gov/mpinc.**

**Figure 4**

**Comparison of U.S. and Nevada Scores from the mPINC Survey.**



Health and Nutrition Examination 1999-2004 survey data to depict diets of school-aged children. Positive findings included that daily intakes of eight essential vitamins and minerals (niacin, riboflavin, vitamins B6 and B-12, thiamin, iron, folate and zinc) were adequate for almost all school-aged children. For 5-8-year-olds, calcium intake exceeded the Adequate Intake (AI) level. However, calcium intakes were less than the AI in older children. In more than 10 percent of children, intakes of fiber, vitamins A, C and E, magnesium, phosphorus and potassium were low. For all age groups, intakes of potassium and fiber were less than recommended. Sodium intakes exceeded the Upper Limit, double that of the AI, for 90 percent of children.

Overall diet quality was measured using 1) USDA's Healthy Eating Index (HEI) 2005, which assesses adherence to the Dietary Guidelines for Americans; and 2) a composite measure of nutrient density. Regardless of income and school-lunch participation, the children sampled fell short of the Dietary Guidelines, averaging 55 out of 100 points on the HEI. The diets were noteworthy for the low intakes of vegetables and fruits, very low intakes of whole grains, and high intakes of sodium, saturated fat and added sugars.

Another August 2008 report from USDA-FNS examined the diet quality of young children based on WIC participation. The report concluded that while WIC participant children did better, on average, than income eligible nonparticipants in fruit and meat and beans intakes, the Dietary Guidelines were, again, not met regarding whole grains, dark green and orange vegetables; and intakes of saturated fats, sodium, solid fats and added sugars were also excessive.

Overweight

Overweight has become a significant problem in American children, affecting an estimated 31.9 percent. The most recent national estimates of obesity for preschool children (2-5 years old), children (6-11 years old), and adolescents (12-17 years old) have been derived from the National Health and Nutrition Examination Survey (NHANES 2003-2006). Among preschool children, approximately 12.4 percent (2003-2006) were obese; this is an increase from 5 percent (1976-1980). The prevalence of obese school age children increased from 6.5 percent (1976-1980) to 17.0 percent (2003-2006) for 6-11 year olds. For 12-19 year olds, the rates increased from 5 percent (1976-1980) to 17.6 percent (2003-2006). Nationally, the prevalence of obesity among youths aged 6-19 is higher for African Americans (22.9 percent) and Hispanics (21.1 percent) than for non-Hispanic whites (16 percent).

Recently released data from the Nevada Health Division on 18,000 4th, 7th and 10th graders showed that 18 percent were overweight and 20 percent were obese. Data on Washoe County children taken at 16 elementary schools indicate that 37.5 percent of Washoe County children are overweight or obese, roughly the same as the state percent but higher than the national average of 31.9 percent. Elementary school and middle school students both had slightly higher rates of obesity (19.9 percent) than older children (17.8 percent of high school students).

Physical Activity - Young Children (Pre-school)

During the preschool years of a child's life, children are impressionable, eager to learn and to become independent. Because they are not yet swayed by the social peer pressures often experienced by children when they reach elementary school, they may easily adapt to healthy eating and physical activity behaviors.

Recent data suggest child care is a major influence on physical activity in young children. Fifty-six percent of 3- to 5-year-olds in the United States are enrolled in center-based child care facilities (an average of 32 hours per week and 6 hours per day). This number is substantially higher in lower-income areas. Preschools, therefore, provide an outstanding window of opportunity for impact.

Although factors such as the attributes and size of play area, type of equipment and length/number of recess or outdoor play breaks play a role in levels of activity performed, recent studies suggest staff training, behaviors and available resources also play a significant role. The absence of evidence-based programs is noted.

Although the 2008 Physical Activity Guidelines for Americans (see reference on page 34) did not review evidence for children younger than age 6, young children should engage in physical activity appropriate for their age and stage of development. The National Association for Sport and Physical Education (NASPE) has published physical activity guidelines for preschool-aged children which states that children should engage in 60 minutes daily of structured activity and 60 minutes (up to several hours) daily of unstructured physical activity. Children should also not be sedentary for more than 60 minutes at a time.

New studies suggest, however, that although physical activity levels in young children vary greatly among preschools, most researchers agree that children have high sedentary activity levels in preschool, low light activity and very low moderate to vigorous activity. Researchers in

one study found that on average, children were sedentary 42 minutes per hour of time spent in their preschool class; engaged in light activity for 10.5 minutes; moderate to vigorous activity for 7.7 minutes; and participated in vigorous activity less than two minutes per hour.

Physical Activity – Children (Age 6-11)

There are documented health benefits for children from physical activity. While physical activity helps to maintain bone mass in adults, it appears to build greater bone mass in childhood. Furthermore, inactive children and adolescents, when compared with active youth, weigh more, have higher blood pressure and lower levels of high-density lipoproteins (HDL) along with elevated low-density lipoprotein cholesterol (LDL). It is estimated that nearly 14.2 million girls and 12.8 million boys age 19 and under have serum cholesterol equal to or greater than 170 milligrams per deciliter, the acceptable upper limit. Hypertensive children and adolescents can lower their blood pressure approximately 10 points by increasing their physical activity. Furthermore, regular physical activity is a recognized component in obesity-risk reduction.

It is important to consider when undertaking Extension physical activity programming with children that our understanding of children in relation to physical activity is more limited than that with adults. From the few studies that have been done, determinants influencing children appear to be similar to those influencing adults. *Intentions* to become physically active; *belief in their ability* to do so; *social influences* of peers and parents (with physically active parents having physically active children); and *enjoyment of* and *positive attitudes* about physical activity are all positively associated with engagement in physical activity by children.

School-based interventions consistently demonstrate strong effects on increasing levels of physical activity in elementary students if the program encourages moderate to vigorous physical activity. However, many schools fall short of the recommended guidelines of 60 minutes per day of moderate to vigorous physical activity. Data suggest that less than half (42 percent) of children actually meet these recommendations. While boys are closer to half at 49 percent, only 35 percent of girls meet the standard physical activity guidelines.

According to the 2008 Physical Activity Guidelines for Americans, children ages 6-11 should engage in moderate- or vigorous-intensity aerobic activity. Children should participate in vigorous-intensity activity at least three days a week. They should also do muscle-strengthening

activity at least three days a week, and engage in bone-strengthening activity at least three days a week.

**Adolescence and Young Adulthood**

In 2005, the Nevada Department of Education conducted its seventh statewide administration of the Nevada Youth Risk Behavior Survey (YRBS) as part of the U.S. Centers for Disease Control and Prevention Youth Risk Behavior Surveillance System. A total of 2,564 students in 83 public schools containing grades nine, 10, 11, or 12 voluntarily responded to the 99-item questionnaire. Limited data are available from the 2007 Nevada YRBS survey, conducted with 1,767 middle school students at 52 schools and 1,783 high school students at 86 schools.

Questions on the 2005 and 2007 YRBS pertaining to dietary behaviors yielded the following information:

- More than half of high school students (53.1 percent in 2005) thought they were about the right weight, while nearly 30 percent in 2005 and 28.6 percent in 2007 believed they were overweight, and 16.9 percent (2005) felt they were underweight. In 2005, more female students (63.1 percent) than male students (34.6 percent) were trying to lose weight.
- Exercising (65.3 percent in 2005, 63.8 percent in 2007) and dieting (41 percent in 2005 and 37.7 percent in 2007) were far more common techniques for weight loss or maintenance than fasting (11.8 percent in 2005 and 11.1 percent in 2007), vomiting/taking laxatives (7.6 percent in 2005 and 5 percent in 2007) or taking diet pills (8.6 in 2005 and 6.6 percent in 2007). Females were more likely than males to use each of the five methods.
- During the week prior to the 2005 survey, 35.9 percent of high school students ate fruit one or more times per day; 16.6 percent drank three or more glasses of milk per day (14.4 percent in 2007); 9.8 percent ate a green salad (10.8 percent in 2007); and 21.3 percent ate vegetables every day (there were no numbers for 2007).
- In 2007, 81 percent ate fruits and vegetables less than five times a day (compared with 78.6 percent of U.S. students).
- In 2007, 23.5 percent drank soda or pop at least one time a day (compared with 33.8 percent of U.S. students).

These results suggest that the food choices and eating patterns of Nevada's youth reflect those of the rest of the nation. Eleven percent of Nevada's youth were assessed to be obese versus a national rate of 13 percent according to 2007 YRBS data reported by the CDC.

Physical Activity

As age increases, activity level decreases. Only 8 percent of youth ages 12-15 meet the recommended 60 minutes per day of physical activity, with four times more boys meeting that goal than girls. Many studies suggest there is a significant decrease in physical activity between children age 9 and age 15. One study found that 9-year-olds engaged in approximately three hours per day of moderate to vigorous physical activity on both weekdays and weekends. By age 13, girls dropped below the 60-minute daily recommendation and boys do so by age 15. YBRS data suggested that time spent watching television may crowd out activity time: 42.7 percent of Nevada middle school students and 35.1 percent of Nevada high school students reported spending three or more hours a day in front of the TV (comparable to national findings). Playing video or computer games and computer use for three or more hours daily was reported by 28.5 percent of Nevada middle school and 24 percent of high school students (2007).

While schools provide a tremendous opportunity for students to engage in physical activity, recent changes in policy have resulted in a decline in the number of students participating in school physical education programs. According to the 2007 CDC YRBS, 69.7 percent of American high school students did not attend physical education classes daily. For Nevada, the rate was 72 percent in 2003 (2007 data not yet available). The prevalence of nonattendance in daily PE classes was lowest among 9$^{th}$-graders (59.9 percent) and highest among 12$^{th}$-graders (76.2 percent). Several *Healthy People 2010* objectives call for program and policy action in our schools to provide the opportunity for increased physical activity.

Adolescents aged 12–17 years should also accumulate one hour or more of physical activity daily, according to the *Physical Activity Guidelines for Americans.* The one hour of activity should be mostly aerobic but should also include muscle-strengthening and bone-strengthening activities. Three days a week each of vigorous-intensity activity, muscle-strengthening activities and bone-strengthening activities are recommended. It is important to encourage young people to participate in physical activities that are appropriate for their age, enjoyable and offer variety.

## Adulthood

In Nevada, there are limited sources of information regarding adults' habits related to chronic disease. The Behavioral Risk Factor Surveillance System (BRFSS), conducted in Nevada since 1992, is the only available source of information regarding food choices, physical activity and tobacco use behaviors. The following is a presentation of 2007 BRFSS findings and other data relevant to the major health concerns among Nevada's adults.

### Coronary Heart Disease (CHD)

Despite the many and varied prevention efforts, approximately 16 million Americans age 20 and over were affected by CHD in 2005 (American Heart Association, 2008). In 2004, CHD alone caused approximately 451,300 deaths for people 18 and over. In 2008 total cardiovascular disease is projected to cost $448.5 billion in direct and indirect costs, including health care services, medications, and lost productivity. Heart disease is the leading cause of death in Nevada, as it is nationally, and accounted for 29 percent of all U.S. deaths in 2002. In 2005, age-adjusted mortality rates for heart disease for Nevada were higher than the national average – 242.1 to 211.1, respectively. In 2002 after age adjustment, race/ethnicity group comparisons indicate that Blacks had the highest death rates for heart disease in the U.S. compared with Caucasians; African Americans have a 50 percent higher rate of death from heart disease and an 80 percent higher rate of death from stroke.

According to the American Heart Association's Diet and Lifestyle Recommendations – Revision 2006 document, "Maintaining a healthy diet and lifestyle offers the greatest potential of all known approaches for reducing the risk for CVD in the general public."

### Cancer

It is estimated that 60 percent of cancer deaths are linked to environmental factors including diet, physical inactivity and tobacco use. High fat intake has been associated with cancers of the breast, colon, rectum, and prostate, and possibly pancreas, uterus and ovary. High alcohol consumption has been associated with cancers of the mouth, pharynx, larynx, esophagus, liver, and breast as reported by the American Cancer Society in 2006.

Nationally, cancer has become the leading cause of death for people aged 45 to 64 and the second-leading cause of death for those aged 25 to 44. In 2005, age-adjusted mortality rates for

cancer in Nevada were higher than the national average – 191.0 to 183.8, respectively. After age-adjustment, race/ethnicity group comparisons indicate that Blacks had the highest death rates from cancer in Nevada. According to the American Cancer Society, in the U.S. total overall costs attributable to cancer in 2005 amounted to $209.9 billion in direct medical costs and lost productivity.

Nevada residents face some of the highest cancer mortality rates in the nation. According to a 2005 Nevada Cancer Council report, a significant factor in cancer care outcomes in Nevada is the inadequacy in addressing health care needs of minority populations. A review of population data demonstrates that minority populations are among the fastest-growing segments of Nevada's population. This growth has brought an increased diversity of cultures and languages, increased social and public welfare issues, increased stratification in income and increased demand for health and public services.

The burden of cancer is not borne equally by all population groups in Nevada. Low-income and medically underserved populations have higher risks of developing cancer and poorer chances of early diagnosis, optimal treatment and survival. Moreover, these populations have not benefited equally from recent improvements in cancer prevention, early detection and treatment.

Diabetes

Diabetes affected 24.4 million people nationwide in 2007. In 2007, $174 billion was spent nationally for the costs of diabetes health care and related treatment. In Nevada, costs for diabetes health care and related treatments run about $167 million annually.

Data from the Nevada Health Division show that in 2007, an estimated 217,467 adults in Nevada, or 8 percent, were diagnosed with diabetes. Additionally, an estimated 487,000 people in Nevada have pre-diabetes due to risk factors such as age, obesity and sedentary lifestyle. Before people develop type 2 diabetes, they almost always have 'pre-diabetes'—blood glucose levels that are higher than normal but not yet high enough to be diagnosed as diabetes. Recent research has shown that some long-term damage to the body, especially the heart and circulatory system, may already be occurring during pre-diabetes. The American Diabetes Association has reported findings from the Diabetes Prevention Program showing that if action is taken to manage blood glucose when one has pre-diabetes, type 2 diabetes can be delayed or prevented from developing. In 2005, diabetes was the primary cause of death for 336 Nevadans. However,

individuals with diabetes have an increased risk for heart disease, kidney failure, blindness and lower extremity amputations not related to injury. Therefore, diabetes contributes to disability and death from other diseases as well.

Additionally, diabetes is prevalent among ethnic and racial minorities. In 2007 American Indian/Alaska Natives had the highest prevalence rates of diabetes among all racial/ethnic groups in Nevada at 15 percent, black nonHispanics have a prevalence rate of 10.7 percent followed by non-Hispanic Whites at 8.9 percent and Hispanics at 4.4 percent. Results from the BRFSS suggest that groups at high risk should be screened, including older adults and retirees, as well as those with low levels of income and educational attainment.

Overweight

More than half (63.0 percent) of adult Nevadans are estimated to be overweight or obese according to the CDC in 2007. Being overweight is associated with a number of health conditions and diseases, including the leading causes of death in the U.S. These include type 2 diabetes; CHD; cancers of the colon, rectum, prostate, breast, and ovary; increased serum cholesterol; and hypertension.

Among adults in Nevada, the self-reported BRFSS data found that 71 percent of males and 55 percent of females were overweight or obese in 2007. In the most recent national ranking available (2007), the rate for adults in Nevada (63.0 percent) slightly exceeded the national median (62.9 percent) in 2007.

Hypertension

The causes of high blood pressure are unknown, but a number of theories have been proposed which are related to diet, lack of exercise, obesity, heredity, and specific types of stress. In 2007 more than one-third (43.6 percent) of those who were 55-64 years old in Nevada were told they have high blood pressure, representing the second-highest proportion of hypertensives of any BRFSS age range. While there is a lower risk for hypertension for respondents in the 45- to 54-year-old age group, their prevalence rates still stand at 30.4 percent. Prevalence drops significantly for those in the 35-44 age group to a rate of 19.1 percent. A much lower incidence of hypertension occurs in the younger age ranges, 9.4 percent for those aged 25-34 and 6 percent

for those in the 18-24 age range. Slightly more than one-half (55.9 percent) of Nevadans aged 65 and older have been told that their blood pressure is high.

National Heart, Lung and Blood Institute statistics show that high blood pressure occurs more often in African American adults than in Caucasian or Hispanic American adults, affecting nearly 40 percent of nonHispanic blacks. Moreover, African Americans tend to be afflicted earlier in life and the condition tends to be more severe. The American Heart Association reports the prevalence of hypertension in African Americans as being the highest of any racial/ethnic group in the world. As a result, they have a 320 percent greater rate of hypertension-related, end-stage renal disease than the general population.

Cirrhosis

Cirrhosis of the liver, which is largely attributable to heavy alcohol consumption, was the 12th-leading cause of death in both the U.S. and Nevada in 2005. Indeed, cirrhosis mortality is used as an indicator of abusive alcohol consumption patterns.

The official BRFSS definition of heavy drinking is the consumption of greater than 2 drinks per day for men and greater than one drink per day for women. In 2007, 7.1 percent of Nevada adults were considered to be heavy drinkers.

Other facts include:

- Adult males in Nevada are engaged in heavy drinking at a rate greater than their female counterparts. Irrespective of age, the male heavy drinking prevalence rate is 8.6 percent compared to 5.6 percent for females in 2007.
- For adults in Nevada, age-specific rates in 2007 clearly show heavy drinking to be most pronounced for those 45-54 years of age at 8.3 percent, with a rate of 7.8 percent in the 18-24 and 35-44 year age ranges, and a rate of 6.9 percent in the 25-34 year age range.

Substance Abuse

Addiction to alcohol and illicit drugs is a serious, chronic and relapsing health problem for both women and men of all ages and backgrounds. One of the leading health indicators of the *Healthy People 2010* objectives, substance abuse is associated with violence, STDs, pregnancy, motor vehicle crashes, homelessness, rising health care costs and even obesity. Of particular interest to the health community is the widespread abuse of stimulants among women including

cocaine, methamphetamine (meth) and other amphetamines. A 2006 report from the Substance Abuse and Mental Health Services Administration revealed that in 2004, methamphetamine and amphetamine admissions were the highest primary substance of abuse in Nevada, followed by alcohol.

Among women, however, drug abuse may present different challenges to health, and can progress differently. In most substance abuse treatment programs, women make up more than half of the clients treated for meth. Meth has become the growing illicit drug of choice among young women because, among other reasons, it is affordable, readily available and attractive for many women who are looking for high energy to sustain daily routines while maintaining lower body weights. One study indicated five times more females than males attributed initial meth use to a desire to lose weight, and more females than males reported using meth to get more energy.

Many women in treatment are court-ordered not only by justice and district courts but also by family courts (e.g., Child Protective Services). This is especially significant since women in the U.S. under correctional supervision are mothers of approximately 1.3 million minor children who are seven times more likely to be incarcerated themselves. In addition, children of substance abusers are exposed to poor health and dietary practices which can have a direct impact on their immediate, as well as future health.

Some of the common health and nutrition issues associated with stimulant and other illicit drug use include poor dietary practices and family meal planning, inactivity, extreme weight gain during recovery, body image and disordered eating patterns, poor hygiene and mental health. Additionally these failed nutrition and physical activity practices within the family unit can have direct impacts on child health and obesity. In an effort to meet many of the *Healthy People 2010* objectives for nutrition and physical activity, provision of health interventions in treatment programs plays a significant role in educating women and their families.

Physical Activity

In a classic *Journal of the American Medical Association* article, physical inactivity and poor nutrition together were identified as the second-leading underlying cause of death. Physical inactivity accounts for 200,000 U.S. deaths annually (being updated by the CDC), placing it second only behind smoking in causes of death. Internationally, the WHO estimates 2 million deaths per year from physical inactivity, making it the seventh leading cause of death. *Healthy*

*People 2010* identified physical activity as a leading physical indicator of the health of the American people.

In 1996, the Surgeon General released a report on Physical Activity and Health and the first physical activity recommendations by the CDC/American College of Sports Medicine (ACSM). The Surgeon General's Report identified physical inactivity as a risk factor for early death, cardiovascular diseases, several cancers, type 2 diabetes, mental health problems, reduced quality of life, osteoporosis and several other diseases. Additionally, the Surgeon General's 2001 *Call to Action on Obesity* and the Institute of Medicine's 2005 report on *Preventing Childhood Obesity* have identified increased physical activity as essential for reversing the obesity epidemic. Physical activity is also the central component of the Strategic Plan for NIH Obesity Research.

It has been more than 10 years since the release of the Surgeon General's report. Despite these and other efforts, physical inactivity remains a pressing public health issue. Technology has reduced the energy needs for activities of daily living and economic incentives have discouraged activity by paying more for sedentary work than active work. The prevalence of overweight and obesity continues to increase. According to the CDC Behavioral Risk Factor Surveillance System (BRFSS) data, 24.1 percent of American adults reported no leisure-time physical activity in 2006. In Nevada, the rate was 27.1 percent. Though previously reported higher by NHANES 2003-2004 (as with the BRFSS also based on self-reported data, which is often greatly overestimated), adherence to 30 minutes of physical activity most days of the week for adults is currently less than 5 percent (based on recent accelerometer studies). Inactivity is more prevalent in women than men, in Blacks than other ethnic groups, and in lower socioeconomic groups.

2008 marked the release of the *Physical Activity Guidelines for Americans*, a joint effort of the U.S. Dept of Health and Human Services (USHHS) and the U.S. Department of Agriculture (USDA). These new guidelines are the first comprehensive guidelines on physical activity ever to be issued by the Federal government. The *2008 Physical Activity Guidelines for Americans* provides science-based guidance to help Americans aged six and older improve their health through appropriate physical activity. The contents provide guidance on the importance of being

physically active to promote good health and reduce the risk of chronic diseases and include these major research findings on the health benefits of physical activity:

- Regular physical activity reduces the risk of many adverse health outcomes. People who are physically active tend to have less coronary heart disease (CHD), hyperlipidemia, hypertension, stroke, osteoporosis, glucose intolerance, type 2 diabetes, obesity and colon cancer. They also have improved immune function, report less depression and anxiety, and have an increased sense of well being.
- Some physical activity is better than none.
- For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.
- Most health benefits occur with at least 150 minutes (two hours and 30 minutes) a week of moderate intensity physical activity, such as brisk walking. Additional benefits occur with more physical activity.
- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group.
- The health benefits of physical activity occur for people with disabilities.
- The benefits of physical activity far outweigh the possibility of adverse outcomes. Healthy adults ages 18- to 65-years-old need to get 30 minutes or more of moderate intensity aerobic activity at least five days per week, or 20 minutes of vigorous intensity for at least three days per week.
- Episodes of activity throughout the day that are at least 10 minutes long count toward meeting the Guidelines.

The Transtheoretical Model is the most commonly used model in intervention and promotion of physical activity. Social surveys suggest that 86 percent of Americans believe exercising for fitness significantly improves a person’s odds of a long and healthy life. While convincing Americans about the importance of exercise is not vital, motivating Americans to exercise is.

The current recommendations from the ACSM for Exercise Readiness and Prescription discuss the use of Prochaska's Stages of Readiness to Change Model to assess an individual's readiness to initiate physical activity either into a lifestyle or as a regular exercise regime. Much research is still needed.

## Older Adulthood

In 2006, 22 percent of Nevada's population was age 55 and over; an increase from 20.9 percent in 1997. In 2008, 13 percent of Nevada's total population was enrolled in Medicare. This compares to 15 percent of the entire U.S. population that is enrolled in Medicare. From 2000 to 2005, Nevada's 65-and-older population increased by 19.7 percent as compared to 3.8 percent in the United States, and those 85 and older in Nevada increased by 41.3 percent compared to a national increase of 14.8 percent. Thus Nevada has had the distinction as the state with the fastest-growing percentage of adults 65 and older. There is no reason to believe this will not continue since Nevada, primarily Clark County, has been the nation's leading retirement destination for more than a decade. In 2004, Nevada had 244,389 Medicare beneficiaries aged 65 and older, an increase of 17 percent since 2000. The Clark County population in the 55-plus age category is estimated to be 21 percent in 2006. Nearly half of that group was aged 55 to 64 (48.2 percent).

The major causes of death among people aged 65 and older are heart disease, cancer, chronic lower respiratory disease, stroke, nephritis, influenza and pneumonia (see Appendix D, p. 69). Other chronic health problems such as diabetes, arthritis, osteoporosis, visual and hearing impairments and dementia are of concern because of their significant impacts on daily living.

### Food Habits

A growing body of evidence shows that changing certain health behaviors including food habits, even in old age, can benefit health and quality of life. Diet can play an important role in mitigating existing health problems of older adults, and there is growing evidence that nutrition counseling and food programs can reduce the risk of disease among older adults.

### Physical Activity

Older Americans are becoming the fastest-growing population in America as the baby boomers start their approach to 65. Consistent with both self-reported data as well as that found

in accelerometer (research-quality pedometer) studies, older adults are also the least physically active of any age group. Based on research and scientific evidence in the development of the *2008 Physical Activity Guidelines for Americans*, it was determined that physical activity in older adults can help prevent or delay the onset of functional and/or role limitations, improve functional ability and reduce falls.

Active midlife and older individuals have approximately a 30 percent lower risk of developing moderate or severe functional limitations or role limitations compared with inactive individuals. In older adults with existing functional limitations, moderate, fairly consistent evidence indicates that regular physical activity is safe and has a beneficial effect on functional ability. Physical activity programs that emphasize balance training and muscle-strengthening activities are safe and may reduce falls for adults at risk for falling.

The same physical activity guidelines recommended for adults ages 18-65 are also used for older adults with some minor modifications. These recommendations are deemed appropriate for older adults, above age 65, or adults from 50-64 if there are clinically significant chronic conditions or functional limitations. One such modification, the intensity of the physical activity, takes into account the older adult's aerobic fitness levels. Instead of basing intensity on Metabolic Equivalent Tasks or METS, intensity is characterized on a 10-point effort scale. Other modifications include an increase in repetitions for muscle-strengthening exercises, additional flexibility exercises, balance-enhancing exercises for those at risk for falls and information concerning the necessity of having an activity plan.

Activity plans for older adults should focus on functional fitness, which means developing the physiological capacity to perform everyday activities safely, independently and without undue fatigue. The program should include flexibility, strength, endurance, agility and balance.

Overall, progress has been made in reaching *Healthy People 2010* objectives to increase all levels of physical activity as well as muscular strength, endurance and flexibility, and reducing sedentary lifestyles. A 2007 USHHS and CDC study found that Nevada seniors were more likely to engage in vigorous physical activity (16.9 percent) than seniors nationwide (14.1 percent). However, the percentage of people over 65 performing self-care activities with difficulty is increasing, moving away from its 2010 objective target.

## Summary

To affect healthful food choice and physical activity behaviors, educators and researchers must continue to create new approaches and interventions responsive to the needs of the target audience. These must be based on what we know about individual behavior change (see Section III) and must also include strategies that result in positive environmental changes. For example, communities may need to design ways to increase access to public facilities, promote physical activity, and make streets and playgrounds safer. However, interventions that target only individuals or small groups will have limited success without public policy and community-level involvement.

## Section V. Social Well-Being

The 1946 World Health Organization defined health as ”a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." In the Nevada 1993 needs assessment, the importance as well as the interrelationship of these factors were recognized and prioritized as being critically important to Nevadans. The recognition of the need for strong support from significant others, including one’s peers and family, has only deepened with time.

### Social Support and Social Networks

The term "social support" is used to describe positive interactions among people. Recent work recognizes the importance of creating supportive environments for desired individual change and the need for multilevel interventions that address intrapersonal, interpersonal, group, institutional and community factors. Health-promotion programs may be more successful with interventions spread across home, worksite and community, an acknowledging of the positive and significant role of social networks and support systems in health outcomes. In the senior population, being involved in social networks (defined as groups within which we live, work and play) helps to decrease mortality, enhance recovery from illness, and diminish health services utilization such as nursing home admission. In addition, the social and psychological benefits of including social networks are:

- A sense of belonging or of community;
- An opportunity to share new information and reinforce behavior change; and
- A decreased risk of loneliness and depression.

Many of Nevada’s health problems, including chronic disease, low birth weight babies, smoking and age-related health changes, may have a social component. Many Cooperative Extension programs utilize social networks for delivery of programs to seniors, worksite employees, members of the African American faith community and the Hispanic adult community, school and prison programs and even health professionals. This has proven to be an effective approach.

## Stress Reduction

The social and psychological benefits of utilizing social networks in program delivery can have a positive effect on how individuals cope with every day hassles as well as major life events. While most Americans have a negative perception of stress and think they should avoid stressful situations, stress is defined as the generalized psycho-physiological response of body and mind to any external demand. On a continuum, stress can be positive or negative depending on the situation. To alleviate stress, many resort to unhealthful behaviors. Some of these behaviors include aberrant eating habits, smoking and extensive television watching – behaviors already addressed in this document. Findings from a recent Canadian study showed that psychological distress was linked with present or future need for health care services, and that stress-reduction resources were especially important for the poor and physically unhealthy. Hence, it is important to continue to incorporate stress-reduction strategies into existing and new educational programs as appropriate.

## Summary

Working within existing social networks can both expand the reach of educational programs and improve the opportunities for successful program impact. Social networks shape a variety of individual choices and behaviors, including health-related decisions as well as an individual's level of concern about health and wellness. Ideally, health promotion education, delivered within existing social networks, will have a stronger impact if individual change is supported by peer behavior. Incorporation of techniques such as stress reduction will further enable individuals to proceed with developing strategies and changes that result in more healthful lives.

## Section VI: Conclusion

As cited in this document, the health and nutrition needs of Nevadans are great. High-risk behaviors (e.g., limited physical activity) coupled with environmental conditions that often discourage healthful lifestyles contribute to these needs. In addition, the explosive growth of Nevada's populace has resulted in groups and communities that are often underserved due to a lack of resources.

Consistent with the role of Cooperative Extension as the link between communities and the University, our educational programs and services are provided to address these needs. We strive to ensure that our programs are research-based and reflect state-of-the-art program content as well as delivery methods. To attain this goal, Nevada adults were surveyed to identify their preferred methods of health information delivery, along with their health concerns, current health practices, perceived barriers and reinforcers for health behaviors. Based on the statewide survey, Nevada adult residents generally rated printed materials as their preferred method of information delivery (it was ranked second highest under both first and second methods) and were disinterested in group education (last in preferred methods and interest rankings). Internet and media were also highly rated as preferred methods (Internet was equal to printed material for the first method and media ranked first under the second method). In general, the preferred method did not differ by rural/urban location, gender, age and race/ethnicity. Respondents to the survey overwhelmingly reported that exercise and eating right were the major things they were doing for their health; other items indicated were hydration, alternative nutrition and supplements, attempt or success regarding nonsmoking, and preventive health medicine. They engaged in these behaviors because they, a friend, or a family member experienced a health issue. Others reported that they had always practiced a healthy lifestyle due to the support from family and having role models. In regards to what respondents wish to incorporate into their lifestyle for better health, again exercise was the overwhelming response. In addition, the majority mentioned losing weight and smoking cessation. Perceived barriers of time, personal motivation, commitment and willpower, financial issues, language and transportation were reported. To overcome these barriers, Nevadans stated a desire for information in a simplified format, money for fruits and vegetables, and the availability of physical fitness facilities (no gyms or health clubs in their area).

In summary, findings from this survey can be explained by a variety of nutrition education behavioral theories. The Theory of Reasoned Action suggests a person's behavior is determined by attitude toward the behavior, what others do and perceived control and power. In the survey, respondents stated that exercise and eating right were two "good things" that they did for their health. However, they faced obstacles such as transportation, lack of facilities in which to exercise, and low levels of personal motivation, commitment and willpower, which reflect constructs of the Social Learning Theory. On the other hand, the choice of printed materials over group education is not explained by the Social Support Theory that suggests the positive impact that social networks can have on personal behavior change. Traditionally, Cooperative Extension has used the group setting (e.g. social networks) as the primary means of delivering programs with measurable outcomes. The Health and Nutrition Team will have to carefully weigh the advantages of this approach versus the stated wishes of the interviewees when planning new programs. Consideration must be given to using different methods depending on the desired result. For example, print materials would be effective in reaching large numbers of people to create awareness of a given health issue. More intensive methods, including group education, could then be offered to those expressing readiness to change.

It is also the goal of Extension to work collaboratively with other organizations and agencies. This minimizes the likelihood of duplication and often results in complementary partnerships. In addition, developing strong partnerships with media and other groups that manage prominent Internet sites will promote delivery of health messages using Nevadan's self reported preferred methods of health information delivery.

Similar to other publicly funded organizations, our aim is to be responsive to community needs while making the most efficient use of resources. This requires careful planning and periodic examination of needs as a part of the planning process. This document was prepared as another step in the examination of Nevada's health and nutritional needs, from the perspective of consumer preferences in the acquisition of health-promoting information. It was guided by the findings of the most current needs assessment, with review and consideration of findings from 1993 and 2000, and the expertise of the Cooperative Extension faculty, staff and valued collaborators.

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# Appendices

# Appendix A

## Recruiting Script for Needs Assessment Interview

Hello, I represent the University of Nevada Cooperative Extension and we would like to ask you a few questions about your needs for health and nutrition information.

Are you a resident of Nevada?
Are you younger than 21?

Would you be willing to take five to 10 minutes to answer these questions so that we can better serve you and the rest of the community?

At the end of the interview, we have a small gift to thank you for your help.

After consent, interviewer will read guidelines from attached needs assessment.

## UNCE Health and Nutrition Needs Assessment

What are some good things you do for your health?

What made you decide to do this (these)?

Are there any other things you would like to do for your health that you're not currently doing?

What would help you do this?

UNCE has different methods to help you achieve your goals. Which one of these works best for you?

Group Education: Interested? YES☐ NO☐ Comments:_____
weekly class____ workshop____ discussion group____ (Days: Sun Mon Tue Wed Thur Fri Sat)

Printed Materials: Interested? YES☐ NO☐ Comments:_____

Internet: Interested? YES☐ NO☐ Comments:_____
website____ chat room____ online class____

Media: Interested? YES☐ NO☐ Comments:_____
TV____ newspaper____ radio____

Is there anything else you would like to say about receiving information?

Zip Code _____ # persons in household _____ Who decides what foods to buy _____Gender: M____ F____

Age category (years) 21-30 31-40 41-50 51-60 61-70 >70

Race and Ethnicity ____ American Indian or Alaska Native ____ Asian or Pacific Islander
____ Black or African American, not of Hispanic Origin ____ White, not of Hispanic Origin
____ Hispanic or Latino

| GROUP EDUCATION | PRINTED MATERIALS | INTERNET | MEDIA |
|---|---|---|---|
| **WEEKLY CLASSES**<br>1 hour at a time over several weeks<br>Which times are best?  | **MONTHLY NEWSLETTER**  | **WEBSITE**  | **TV**  |
| **ALL-DAY WORKSHOP**<br>6 - 8 hours  | **BROCHURE/FLYER**  | **CHAT ROOM**  | **NEWSPAPER**   |
| **DISCUSSION GROUP**  | **MAILINGS**<br>Postal service  <br>E-mail  <br>Pick up from office  | **ON-LINE CLASSES**  | **RADIO**  |

## Appendix B

# Tables 1-16

**Table 1: LOGIC MODEL**

| SITUATION | INPUTS | OUTPUTS | | II. OUTCOMES -- IMPACT | | |
|---|---|---|---|---|---|---|
| | | *Activities* | *Participation* | Knowledge | Actions | Conditions |
| To develop effective health promotion campaigns health educators require an understanding of Nevadans' perceived needs, barriers and reinforces, and preferred methods of receiving information. In addition, these components vary in subgroups of Nevadans.<br><br>There is limited information regarding these aspects. | UNCE staff obtained information from residents of:<br>Carlin<br>Carson City<br>Clark<br>Douglas<br>Lyon<br>Humboldt<br>Nye<br>Pershing<br>Washoe<br><br>23 census tracks were selected; allowing oversampling of low-income, minority, and rural population<br><br>Survey questionnaire<br><br>Gift for respondents<br><br>Funding from UNCE Dean | Develop and pilot test survey questionnaire<br><br>Create training materials and conduct training of UNCE staff<br><br>Obtain IRB approval to conduct the study<br><br>Direct survey of residents in the 23 census tracks selected<br><br>Purchase gifts<br><br>Evaluation of survey results both qualitative and quantitative | 341 adult residents in the state of Nevada | UNCE staff gain knowledge of adult Nevadans' current health practices, perceived barriers, preferred methods on obtaining information and support. | Develop effective health promotion campaigns to support healthful behaviors | Decrease the modifiable risk factors associated with heart disease the first through fourth-leading adult disease in Nevada adults - 2005 data<br><br>obese and overweight 2007 63%<br><br>Physically inactive – 27.1%<br><br>Hypertension – 2003 46%<br><br>Diagnosed Diabetes, 2007 8%<br><br>Reduce the dietary risk factors Increase the proportion of adult Nevada residents that are consume of 5+ fruits/vegetables per day – 2007 22.4% |

**ASSUMPTIONS**

The census tracks and respondents are representative of adult Nevada residents

Respondents accurately answering the survey question and were not influenced by social conformities

**EXTERNAL FACTORS**

Some census tracts originally identified were changed due to unsafe area and unavailability of appropriate place for conducting the survey

Lack of willingness of Nevada residents to respond to a survey - especially among Hispanic residents

## Table 2: Characteristic of Adult Nevada Survey Respondents *N* = 338

| | | Study sample number | Study sample % | Nevada population 2000 Census |
|---|---|---|---|---|
| **Gender** | Male | 148 | 43.8 % | 51 % |
| | Female | 181 | 53.6 % | 49 % |
| | No response | 9 | 2.7 % | 0 % |
| **Age** | 21-30 years old | 61 | 18 % | 18 % |
| | 31-40 years old | 49 | 14.5 % | 23 % |
| | 41-50 years old | 81 | 24 % | 21 % |
| | 51-60 years old | 63 | 18.6 % | 17 % |
| | 61-70 years old | 51 | 15.1 % | 11 % |
| | >70 years old | 31 | 9.2 % | 10 % |
| | No response | 2 | 0.6 % | 0 % |
| **Race/Ethnicity** | American Indian | 17 | 17 % | 1.22 % |
| (not=100percent due to Ethnicity) | Asian | 8 | 2.4 % | 5.91 % |
| | Black | 51 | 15.1 % | 7.34 % |
| | Hispanic | 47 | 13.9 % | 24.45 % |
| | White | 213 | 63 % | 73.65 % |
| | No response | 2 | 0.6 % | 0 % |
| **Rural vs. Urban** | Rural | 130 | 38.5 % | 51 % |
| (survey division) | Urban | 208 | 61.5 % | 49 % |
| **Rural vs. Urban** | Rural | 130 | 38.5 % | 8 % |
| (census bureau division) | Urban | 208 | 61.5 % | 92 % |
| **County** | Churchill | 0 | 0 % | 1.2 % |
| ( percent total household) | Carson City | 15 | 4.4 % | 2.5 % |
| | Clark | 133 | 39.3 % | 69.0 % |
| | Douglas | 17 | 5.0 % | 2.1 % |
| | Elko | 44 | 13.0 % | 2.3 |
| | Esmeralda | 0 | 0 % | 0.05 % |
| | Eureka | 0 | 0 % | 0.1 % |
| | Humboldt | 15 | 4.4 % | 0.8 % |
| | Lander | 0 | 0 | 0.3 % |
| | Lincoln | 0 | 0 | 0.2 % |
| | Lyon | 15 | 4.4 % | 1.7 % |
| | Mineral | 0 | 0 % | 0.3 % |
| | Nye | 23 | 6.8 % | 1.6 % |
| | Pershing | 16 | 4.7 % | 0.3 % |
| | Story | 0 | 0 % | 0.2 % |
| | Washoe | 60 | 17.8 % | 17.0 % |
| | White Pine | 0 | 0 % | 0.4 % |
| Household Income | $ < 40,000 | 154 | 40 % | |
| | $ 40,000 – 60,000 | 219 | 56 % | |
| | $ > 60,000 | 15 | 4 % | |

**Table 3: Preferred 1st and 2nd Method of Receiving Health Information**

| | 1st Method | | | 2nd Method | |
|---|---|---|---|---|---|
| *N* = 338 | Freq | Percent | | Freq | Percent |
| Internet | 111 | **32.8** | Media | 97 | **28.7** |
| Printed Material | 108 | **32** | Printed Material | 86 | **25.4** |
| Media | 56 | 16.6 | Internet | 62 | 18.3 |
| Group Education | 44 | 13 | Group Education | 36 | 10.7 |
| Total | 319 | 94.4 | Total | 281 | 83.1 |
| Missing | 19 | 5.6 | Missing | 57 | 16.9 |

**Table 4: Preferred Method of Health Information Delivery, Urban and Rural *N* = 338**

| | 1st preferred method | | | 2nd preferred method | | | |
|---|---|---|---|---|---|---|---|
| Frequency | Urban | Rural | Total | | Urban | Rural | Total |
| Internet | **34%** | **36%** | 111 | Media | **34%** | **36%** | 97 |
| Printed Material | **31%** | **38%** | 108 | Printed Material | **29%** | **34%** | 86 |
| Media | 18% | 17% | 56 | Internet | 23% | 19% | 62 |
| Group Education | 17% | 9% | 44 | Group Education | 14% | 11% | 36 |
| Total | 61% | 39% | 319 | Total | 63% | 37% | 281 |
| Missing | | | 19 | Missing | | | 57 |

**Table 5: 1st & 2nd Preferred Method of Health Information Delivery by Cooperative Extension Area *N* = 338**

| | 1st preferred method | | | | 2nd preferred method | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Central Northeast Area | Western Area | Southern Area | Total | | Central Northeast Area | Western Area | Southern Area | Total |
| Printed Material | **43** | 30 | 35 | 108 | Printed Material | 30 | **26** | 30 | 86 |
| Internet | 36 | **35** | **40** | 111 | Internet | 18 | 14 | 30 | 62 |
| Media | 21 | 13 | 22 | 56 | Media | **34** | **27** | **36** | 97 |
| Group Education | 9 | 9 | 26 | 44 | Group Education | 10 | 12 | 14 | 36 |
| Total | 113 | 92 | 133 | 319 | Total | 92 | 79 | 110 | 281 |
| Missing | 4 | 5 | 10 | 19 | Missing | 21 | 13 | 23 | 57 |

**Table 6: 1st and 2nd Preferred Method of Health Information Delivery by County *N* =338**

| County | | Carson City | Clark | Douglas | Elko | Humboldt | Lyon | Nye | Pershing | Washoe |
|---|---|---|---|---|---|---|---|---|---|---|
| Respondents | | 15 | 133 | 17 | 44 | 15 | 15 | 23 | 16 | 60 |
| **1st preferred method** | Printed material | **47 %** | 26 % | 24 % | **29.5 %** | **53 %** | **53 %** | **39 %** | 31 % | 32 % |
| | Internet | 33 % | **30 %** | **47 %** | **29.5 %** | 40 % | 27 % | 26 % | **44 %** | **37 %** |
| | Media | 13 % | 16.5 % | 0 % | **29.5 %** | 7 % | 20 % | 13 % | 6 % | 18 % |
| | Group education | 7 % | 19.5 % | 12 % | 11.5 % | 0 % | 0 % | 13 % | 6 % | 10 % |
| | Missing | 0 % | 8 % | 17 % | 0 % | 0% | 0 % | 9 % | 13 % | 3 % |
| **2nd preferred method** | Printed material | **26.7 %** | 23 % | **29 %** | 18 % | **40 %** | 33 % | 22 % | **38 %** | 28 % |
| | Internet | 20 % | 23 % | 12 % | **27 %** | 13 % | 7 % | 9 % | 6 % | 15 % |
| | Media | 20 % | **27 %** | 18 % | 25 % | 20 % | **40 %** | **35 %** | **38 %** | **35 %** |
| | Group education | **26.7%** | 11 % | 6 % | 9 % | 13% | 7 % | 13 % | 0 % | 12 % |
| | Missing | 6.6 % | 16 % | 35 % | 21% | 14 % | 13 % | 21 % | 18 % | 10 % |

**Table 7: Method of Health Information Delivery by Gender *N* = 338**

| | 1st preferred method | | | | 2nd preferred method | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Missing | Total | | Male | Female | Missing | Total |
| Internet | **48** | 59 | 4 | 111 | Media | **47** | **47** | 4 | 97 |
| Printed Material | 41 | **67** | 0 | 108 | Printed Material | 41 | 44 | 1 | 86 |
| Media | 31 | 23 | 2 | 56 | Internet | 28 | 33 | 1 | 62 |
| Group Education | 21 | 21 | 2 | 44 | Group Education | 11 | 24 | 1 | 36 |
| Total | 141 | 170 | 8 | 319 | Total | 126 | 148 | 7 | 281 |
| Missing | | | | 19 | Missing | | | | 57 |

**Table 8: Method of Health Information Delivery by Age *N* = 338**

| 1st preferred method | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | >70 | Missing | Total |
| Internet | **28** | 14 | **32** | 18 | 15 | 3 | 1 | 111 |
| Media | 12 | 7 | 13 | 9 | 10 | 5 | 0 | 56 |
| Group Education | 10 | 10 | 10 | 4 | 4 | 6 | 0 | 44 |
| Printed Material | 8 | **17** | 24 | **26** | **17** | **15** | 1 | 108 |
| Total | 58 | 48 | 79 | 57 | 46 | 29 | 2 | 319 |
| Missing | | | | | | | | 19 |

**Table 9: Method of Health Information Delivery by Age *N* = 338**

| 2nd preferred method | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | >70 | Missing | Total |
| Media | 15 | 14 | 20 | **27** | **12** | **8** | 1 | 97 |
| Printed Material | **16** | 9 | **30** | 14 | 11 | 6 | 0 | 86 |
| Internet | 14 | **15** | 11 | 9 | 8 | 5 | 0 | 62 |
| Group Education | 7 | 7 | 4 | 5 | 8 | 4 | 1 | 36 |
| Total | 52 | 45 | 65 | 55 | 39 | 23 | 2 | 281 |
| Missing | | | | | | | | 57 |

**Table 10: Method of Health Information Delivery by Race/Ethnicity *N* = 338**

| | 1st preferred method | | | | | | |
|---|---|---|---|---|---|---|---|
| | American Indian | Asian | Black | Hispanic | White | No response | Total |
| Internet | 3 | 3 | 12 | **14** | **79** | 0 | 111 |
| Printed Material | **6** | **4** | **17** | 7 | 72 | 2 | 108 |
| Media | 3 | 1 | 5 | 12 | 35 | 0 | 56 |
| Group Education | 2 | 0 | 9 | **14** | 19 | 0 | 44 |
| Total | 14 | 8 | 43 | 47 | 205 | 2 | 319 |
| Missing | | | | | | | 19 |

**Table 11: Method of Health Information Delivery by Race/Ethnicity *N* = 338**

| | 2nd preferred method | | | | | | |
|---|---|---|---|---|---|---|---|
| | American Indian | Asian | Black | Hispanic | White | No response | Total |
| Media | **5** | 6 | **15** | 9 | **61** | 1 | 97 |
| Printed Material | **5** | 0 | 7 | **19** | 55 | 0 | 86 |
| Internet | 2 | 0 | 10 | 8 | 42 | 0 | 62 |
| Group Education | 1 | 0 | 5 | 6 | 24 | 0 | 36 |
| Total | 13 | 6 | 37 | 42 | 182 | 1 | 281 |
| missing | | | | | | | 57 |

**Table 12: Interest in Different Methods for Receiving Health Information**

| | **Yes** | **No** |
|---|---|---|
| Printed Materials | **62.1 %** | 37.9 % |
| Internet | **53.8 %** | 46.2 % |
| Media | 48.5 % | **51.5 %** |
| Group education | 27.7 % | **71.9 %** |

**Table 13: Preferred Method to Receive Information Among Those who Indicated Interest in a Category:**

| | | Yes | No |
|---|---|---|---|
| Group Education | Weekly classes | 21 % | **79 %** |
| | Discussion group | 19 % | **81 %** |
| | Workshop | 13 % | **87 %** |
| | | | |
| Printed Materials | Newsletter | 45 % | **55 %** |
| | Mailings | 32.5 % | **67.5**% |
| | Brochure | 21 % | **79 %** |
| | | | |
| Internet | Website | 48 % | **52 %** |
| | Online class | 24 % | **76 %** |
| | Chat room | 4 % | **96 %** |
| | | | |
| Media | TV | 44 % | **56 %** |
| | Newspaper | 30 % | **70 %** |
| | Radio | 17.5 % | **82.5** % |

**Table 14: Interest in Methods of Health Information Delivery**

| | | Race and Ethnicity | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | American Indian | Asian | Black | Hispanic | White | No Response | Total |
| Group Ed. | Yes | 29% | 12.5% | 45% | 38% | 22% | 0 | 93 |
| | No | **71%** | **87.5**% | **55%** | **62%** | **78%** | 2 | 243 |
| Printed Material | Yes | **82%** | 50% | **59%** | **57%** | **63%** | 2 | 210 |
| | No | 18% | 50% | 41% | 43% | 34% | 0 | 128 |
| Internet | Yes | 29% | 50% | **53%** | 47% | **59%** | 0 | 182 |
| | No | **71%** | 50% | 47% | **53%** | 41% | 2 | 156 |
| Media | Yes | **53%** | **87.5**% | 49% | 47% | 47% | 1 | 164 |
| | No | 47% | 12.5% | **51%** | **53%** | **53%** | 1 | 174 |

**Table 15: Interest in Methods of Health Information Delivery**

| | | Urban or Rural | | | Gender | | | |
|---|---|---|---|---|---|---|---|---|
| | Interest | Urban | Rural | p-value | Male | Female | Missing | p-value |
| Group Education | Yes | 33 % | 16 % | **.01** | 24% | 29 % | 4 | .32 |
| | No | **67 %** | **84 %** | | **76%** | **71 %** | 5 | |
| Printed Material | Yes | **61 %** | **54 %** | .61 | **61%** | **66 %** | 1 | .36 |
| | No | 39 % | 46 % | | 39% | 34 % | 8 | |
| Internet | Yes | **56 %** | 42 % | .26 | **53%** | **54 %** | 6 | .79 |
| | No | 44 % | **58 %** | | 47% | 46 % | 3 | |
| Media | Yes | 50 % | 38 % | .36 | **54%** | 43 % | 7 | **.04** |
| | No | 50 % | **62 %** | | 46% | **57 %** | 2 | |

**Table 16: Interest in Methods of Health Information Delivery**

| | | Age Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | >70 | Missing | Total |
| Group Education | Yes | 32 % | 33 % | 20 % | 22 % | 27 % | 42 % | 1 | 93 |
| | No | **68 %** | **67 %** | **80 %** | **78 %** | **73 %** | **58 %** | 1 | 243 |
| Printed Material | Yes | 48 % | **57 %** | **70 %** | **68 %** | **57 %** | **74 %** | 1 | 210 |
| | No | **52 %** | 43 % | 30 % | 32 % | 43 % | 26 % | 1 | 128 |
| Internet | Yes | **70 %** | **59 %** | **53 %** | 49 % | 49 % | 32 % | 1 | 182 |
| | No | 30 % | 41 % | 47 % | **51 %** | **51 %** | **68 %** | 1 | 156 |
| Media | Yes | 49 % | 47 % | 43 % | **56 %** | 49 % | 48 % | 1 | 164 |
| | No | **51%** | **53 %** | 57 % | 44 % | **51%** | **52 %** | 1 | 174 |

# Appendix C

**Figure 1: Preferred First Choice Method of Receiving Health Information**

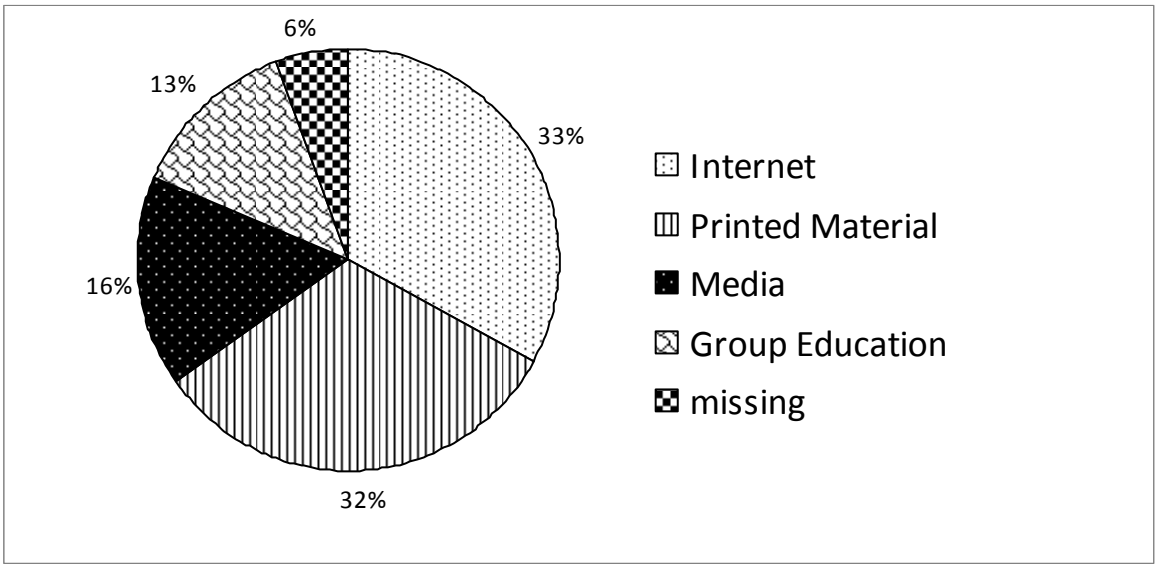
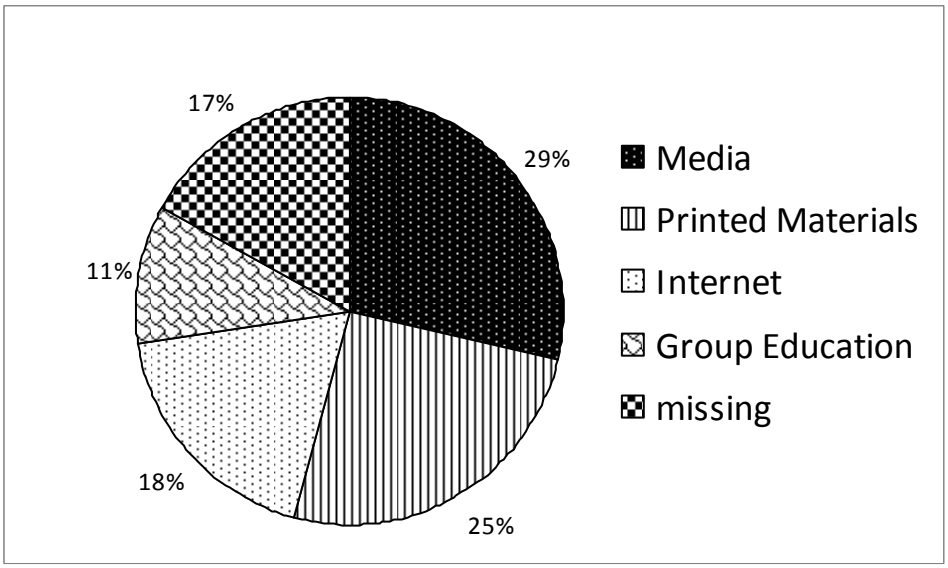



**Figure 2: Preferred Second Choice Method of Receiving Health Information**



# Appendix D

## 10 Leading Causes of Death, Nevada 2005, All Races, Both Sexes

| | Age Groups | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rank | <1 | 1-4 | 5-9 | 10-14 | 15-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | All Ages |
| 1 | Congenital Anomalies 58 | Unintentional Injury 22 | Unintentional Injury 4 | Unintentional Injury 15 | Unintentional Injury 149 | Unintentional Injury 140 | Unintentional Injury 188 | Heart Disease 439 | Malignant Neoplasms 839 | Heart Disease 3,653 | Heart Disease 5,094 |
| 2 | Short Gestation 18 | Homicide 9 | Homicide 3 | Malignant Neoplasms 5 | Suicide 53 | Suicide 65 | Heart Disease 132 | Malignant Neoplasms 370 | Heart Disease 812 | Malignant Neoplasms 2,884 | Malignant Neoplasms 4,238 |
| 3 | SIDS 17 | Malignant Neoplasms 5 | Malignant Neoplasms 3 | Suicide 5 | Homicide 51 | Homicide 52 | Malignant Neoplasms 93 | Unintentional Injury 227 | Chronic Low. Respiratory Disease 129 | Chronic Low. Respiratory Disease 1,058 | Chronic Low. Respiratory Disease 1,227 |
| 4 | Maternal Pregnancy Comp. 13 | Congenital Anomalies 3 | Congenital Anomalies 2 | Congenital Anomalies 4 | Heart Disease 15 | Heart Disease 39 | Suicide 89 | Suicide 99 | Unintentional Injury 113 | Cerebro-vascular 760 | Unintentional Injury 1,104 |
| 5 | Unintentional Injury 10 | Cerebro-vascular 2 | Cerebro-vascular 1 | Benign Neoplasms 1 | Malignant Neoplasms 8 | Malignant Neoplasms 31 | HIV 40 | Liver Disease 73 | Cerebro-vascular 92 | Nephritis 353 | Cerebro-vascular 945 |
| 6 | Neonatal Hemorrhage 8 | Benign Neoplasms 1 | Influenza & Pneumonia 1 | Diabetes Mellitus 1 | Influenza & Pneumonia 7 | HIV 12 | Liver Disease 40 | Cerebro-vascular 56 | Liver Disease 80 | Influenza & Pneumonia 347 | Suicide 480 |
| 7 | Respiratory Distress 8 | Influenza & Pneumonia 1 | Septicemia 1 | Heart Disease 1 | Congenital Anomalies 5 | Cerebro-vascular 10 | Homicide 35 | Septicemia 38 | Septicemia 72 | Alzheimer's Disease 310 | Influenza & Pneumonia 454 |
| 8 | Homicide 7 | | | Homicide 1 | Diabetes Mellitus 3 | Influenza & Pneumonia 5 | Diabetes Mellitus 25 | Chronic Low. Respiratory Disease 33 | Suicide 71 | Septicemia 281 | Nephritis 438 |
| 9 | Three Tied 6 | | | Meningitis 1 | Cerebro-vascular 2 | Diabetes Mellitus 4 | Cerebro-vascular 22 | Viral Hepatitis 33 | Diabetes Mellitus 64 | Unintentional Injury 235 | Septicemia 417 |
| 10 | Three Tied 6 | | | Septicemia 1 | Eight Tied 1 | Two Tied 3 | Influenza & Pneumonia 17 | Diabetes Mellitus 31 | Influenza & Pneumonia 41 | Diabetes Mellitus 208 | Diabetes Mellitus 336 |

WISQARS™ Produced By: Office of Statistics and Programming, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System

Note: The color backgrounds in this chart were original to the document, and highlight the incidence of causes of death not attributable to disease states.

## Appendix E

# Healthy People 2010 - Objectives for Nutrition

Overall Goal: Promote health and reduce chronic disease associated with diet and weight.

1. Increase to at least 60 percent the proportion of adults who are at a healthy weight (defined as a BMI equal to or greater than 18.5 and less than 25.0). (Baseline: national 42 percent; Nevada 40 percent)
2. Reduce to 15 percent or less the proportion of adults who are obese (having a BMI at or above 30 among people aged 20 and older). (Baseline: national 23 percent; Nevada 21.1 percent)
3. Reduce to 5 percent or less the proportion of overweight and obesity (being at or above the sex- and age-specific 95$^{th}$ percentile of BMI from the revised NCHS/CDC growth charts) in children (aged 6-11) and adolescents (aged 12-19). (Baseline: national 11 percent for children, 11 percent for adolescents; Nevada unknown)
4. Reduce growth retardation among low-income children under age 5 years to 5 percent or less. (Baseline: national 8 percent; Nevada unknown)
5. Increase to at least 75 percent the proportion of persons aged 2 years and older who consume at least two servings of fruit. (Baseline: national 28 percent; Nevada unknown)
6. Increase to at least 50 percent the proportion of persons aged 2 years and older who consume at least three daily servings of vegetables, with at least one third being dark green or orange vegetables. (Baseline: national 3 percent; Nevada unknown)
7. Increase to at least 50 percent the proportion of persons aged 2 years and older who consume at least six daily servings of grain products with at least three being whole grains. (Baseline: national 7 percent; Nevada unknown)
8. Increase to at least 75 percent the proportion of persons aged 2 years and older consume less then 10 percent of calories from saturated fat. (Baseline: national 36 percent; Nevada unknown)
9. Increase to at least 75 percent the proportion of persons aged 2 years and older who consume no more then 30 percent of calories from total fat. (Baseline: national 33 percent; Nevada unknown).

10. Increase to at least 65 percent the proportion of persons aged 2 years and older who consume 2,400 mg or less of sodium daily. (Baseline: national 21 percent, Nevada unknown)
11. Increase to at least 75 percent the proportion of persons aged 2 years and older who meet dietary recommendations for calcium. (Baseline: national 46 percent; Nevada unknown)
12. Reduce iron deficiency to 5 percent or less among children aged 1 and 2, to less than 1 percent among children aged 3 and 4, and to 7 percent or less among nonpregnant females of childbearing age, i.e., 12 to 49 years). (Baseline: national 9 percent, 4 percent, and 11 percent, respectively; Nevada unknown)
13. Reduce anemia among low-income pregnant women in their third trimester to 20 percent or less. (Baseline: national 29 percent; Nevada unknown)
14. (Developmental) Reduce iron deficiency among pregnant females.
15. (Developmental) Increase the proportion of children and adolescents aged 6 to 19 years whose intake of meals and snacks at school contributes to good overall dietary quality.
16. Increase to at least 85 percent the proportion of worksites that offer nutrition or weight management classes or counseling for employees. (Baseline: national 55 percent of worksites with 50 or more employees; Nevada unknown)
17. Increase to at least 75 percent the proportion of physician office visits made by patients with a diagnosis of cardiovascular disease, diabetes or hyperlipidemia that include counseling or education related to diet and nutrition. (Baseline: national 42 percent; Nevada unknown)
18. Increase food security among U.S. households to at least 94 percent of all households and in so doing reduce hunger. (Baseline: national 88 percent; Nevada unknown)

U.S. Department of Health and Human Services. Healthy People 2010:Understanding and Improving Health. (2nd ed.) Washington DC. U.S. Government Printing Office. November 2000. Retrieved May 25, 2009 from http://www.health.gov/healthypeople/

## Appendix F

# Healthy People 2010 - Objectives for Physical Activity and Fitness

1. Reduce to at least 20 percent the proportion of adults (age 18 and older) who engage in no leisure time activity (Baseline: national 40 percent; Nevada 24.2 percent)
2. Increase to at least 30 percent the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day. (Baseline: national 15 percent; Nevada 50.8 percent)
3. Increase to at least 30 percent the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness three or more days per week for 20 or more minutes per occasion. (Baseline: national 23 percent; Nevada 30.3 percent)
4. Increase to at least 30 percent the proportion of adults who regularly (two or more days per week) perform physical activities that enhance and maintain muscular strength and endurance. (Baseline: national 18 percent; Nevada unknown)
5. Increase to at least 43 percent the proportion of adults who perform physical activities that enhance and maintain flexibility. (Baseline: national 30 percent; Nevada unknown)
6. Increase to at least 35 percent the proportion of adolescents (young people in grades 9 – 12) who engage in moderate physical activity for at least 30 minutes on five or more of the previous seven days. (Baseline: 27 percent; Nevada 27.2 percent)
7. Increase to at least 85 percent the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness three or more days per week for 20 or more minutes per occasion. (Baseline: national 65 percent; Nevada 66.6 percent).
8. Increase the proportion of the nation's public and private schools that require daily physical education for all students: elementary and middle/junior schools to 25 percent, and senior high schools to 5 percent. (Baseline: national middle/junior 17 percent, senior high 2 percent; Nevada unknown)
9. Increase to at least 50 percent the proportion of adolescents who participate in daily school physical education. (Baseline: national 25 percent; Nevada 65 percent males, 55 percent females)

10. Increase to at least 50 percent the proportion of adolescents who spend at least 50 percent of school physical education class time being physically active. (Baseline: national 38 percent, Nevada unknown)
11. Increase to at least 75 percent the proportion of adolescents who view television two or fewer hours on a school day. (Baseline: national 57 percent; Nevada unknown)
12. (Developmental) Increase the proportion of the Nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours (i.e., before and after the school day, on weekends, and during summer and other vacations). (no baselines)
13. Increase to 75 percent the proportion of worksites offering employer-sponsored physical activity and fitness programs. (Baseline: national varies from 38-68 percent depending on number of employees; Nevada unknown)
14. Increase the proportion of trips (of one miles or less) made by walking: in adults 18 years and older to 25 percent and children and adolescents to 50 percent. (Baseline: national adults 17 percent, children/adolescents 31 percent)
15. Increase the proportion of trips made by adults bicycling five miles or less to 2 percent, and by children and adolescents bicycling two miles or less to 5 percent. (Baseline: national adults .6 percent and children/adolescents 2.4 percent.

U.S. Department of Health and Human Services. Healthy People 2010:Understanding and Improving Health. (2nd ed.) Washington DC. U.S. Government Printing Office. November 2000. Retrieved May 25 from http://www.health.gov/healthypeople/

## Appendix G

# Healthy People Nevada 2010

# Nutrition Objectives

1. (19-1) Increase the proportion of adults who are at a healthy weight.
2. (19-2) Reduce the proportion of adults who are obese.

# Physical Activity and Fitness Objectives

1. (22-1) Reduce the proportion of adults who engage in no leisure-time physical activity.
2. (22-2) Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.
3. (22-3) Increase the proportion of adults who engage in vigorous physical activity promoting the development and maintenance of cardiorespiratory fitness, three or more days per week, for 20 or more minutes per occasion.
4. (22-6) Increase the proportion of adolescents (Grades 9-12) reporting engaging in moderate physical activity for at least 30 minutes on five or more of the previous seven days.
5. (22-7) Increase the proportion of adolescents (Grades 9-12) who engage in vigorous physical activity that promotes cardiorespiratory fitness, three or more days per week for 20 or more minutes per occasion.

Griffith, M, Lee, W. & Yang, W. 2006. Healthy People Nevada 2010. Nevada State Department of Health and Human Services. July.