



# It's In Your Blood

How Your Family  
Health History  
Can Help You  
Determine Your  
Risk of Disease

# What is a Family Health History?

- A family health history can be used to help you determine your chances of inheriting an illness or disease.
- Using a “pedigree,” or family tree, you can “plot” your ancestors, along with any health conditions, health habits, psychological or social issues, geographical or economic conditions they had.

# Why Should I Care About My Family's Health History?

“Knowing your family history can save your life. The earlier you know which health conditions run in your family, the easier it is to develop prevention plans with your doctor. Start the conversation with your family on National Family History Day- celebrated every Thanksgiving.”

**Richard H. Carmona, M.D., M.P.H**  
**Former U.S. Surgeon General**

# Why Should I Care?

- By understanding your genetic make-up, you can follow how diseases have been passed from generation to generation, and evaluate your (and family member's) risk for developing the same diseases
- Once you know diseases or conditions you may be at increased risk for, you can plan to make changes in your behavior or environment to prevent, minimize or delay the effects of the disease

# What can go wrong?

- Cells with too many or too few chromosomes usually don't function properly.
- Disruptions in or dysfunctional cell division can affect the number or "quality" of chromosomes
- Environmental factors, such as prolonged exposure to toxic substances, climate extremes, etc. can affect cell division and cell quality (can cause mutations)
- Behaviors can affect cell function. These include smoking, alcohol abuse, obesity, inactivity (the old "use it or lose it").



# Genetics in ethnic groups

- Some genetic disorders occur more often in certain ethnic groups
- Tay-Sachs disease, for example, occurs more frequently in Jewish populations that trace their ancestry to northeastern Europe. It is assumed that the gene for Tay-Sachs arose by a genetic mutation in that population many generations ago.
- Religious and cultural traditions have resulted in a tendency for individuals from that population to “marry within the group.” The result is an increased chance that children born in this group share common genetic materials, including genetic mutations that may cause disease.

# Some known genetic conditions

- Huntington's disease
- Cystic fibrosis
- Phenylketonuria
- Diabetes
- Heart disease
- Parkinson's disease
- Cancer
- Mental illness

# Some known hereditary traits

- Baldness (but not how you may think)
- Physical build
- Ability to roll your tongue
- Skin color (what is the definition of “race?”)
- Hair & eye color
- Production of ear wax

# How do I record my family health history?

- Should include details on at least the first, second, and third generation relatives
- Organize into pedigree for a visual as to how traits are clustered
- For each family member, include such information as:
  - Current age or age at death
  - Ethnicity
  - Relevant medical or psychological conditions, and age of onset
  - Any known risk behaviors (smoking, alcoholism, abuse)

## How is a family medical history used?

Compiling a family medical history can help you and your doctor spot patterns of specific conditions and diseases among family members. Your doctor and other health care professionals can use your family's medical history — sometimes called a pedigree — for a number of things, including:

- Diagnosing a medical condition
- Determining whether you may benefit from preventive measures to lower your risk of a specific disease
- Deciding what medical tests to run
- Identifying other members of your family who are at risk of developing certain diseases
- Calculating your risk of certain diseases
- Calculating your risk of passing certain conditions to your children

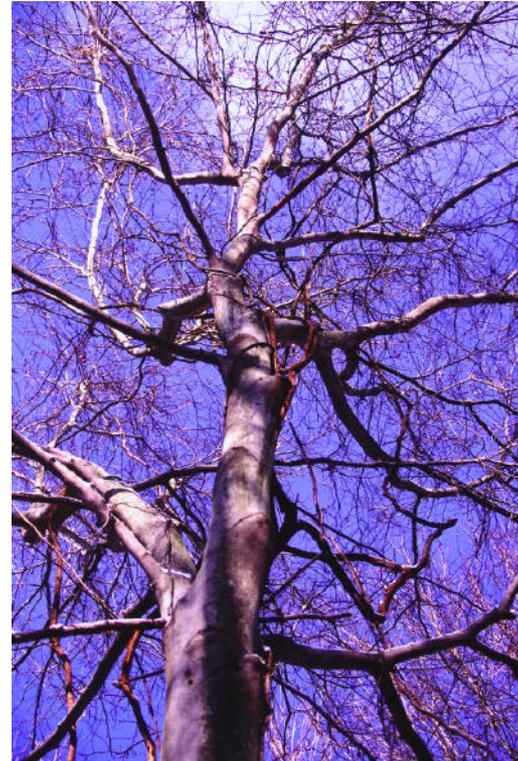
# Creating a family health history tree

Who Do You Think You Are?



# Where to Begin?

- Many resources on the Web:
  - U.S. Surgeon General -  
<http://www.hhs.gov/familyhistory/>
  - CDC  
<http://www.cdc.gov/genomics/training/perspectives/famhistr.htm>
  - Heartland Family History Web page  
<http://heartlandfamilyhistory.org/>



# Where Do I Find the Information?

- Family members and friends
- Family documents – bibles, deeds, letters, birth and death certificates (county recorder)
- Library – census documents, directories
- Genealogy organizations





# Information to Gather

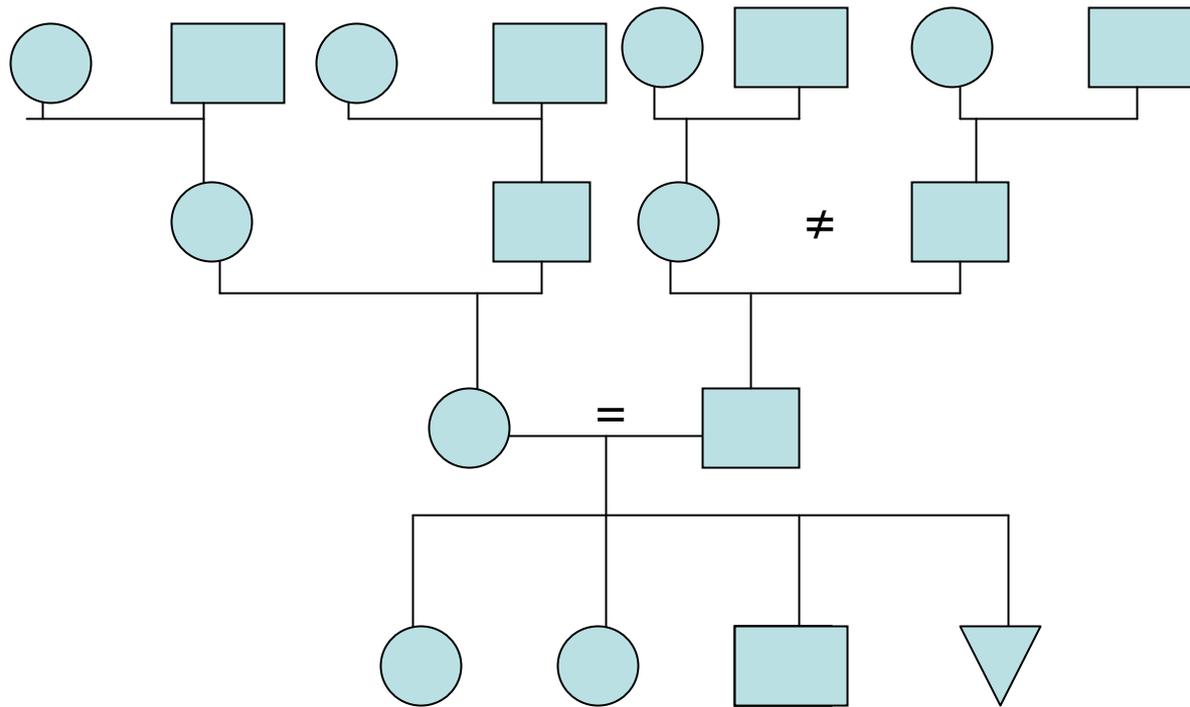
- Names, including maiden names and other married names (multiple marriages or women who keep their maiden names)
- Birth date
- Date of death and cause if known
- Current age or age at death
- Marital status
- Spouse's name



# Information to Gather

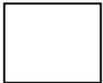
- Number of siblings, including any who died at birth or infancy
- Pregnancy losses, date and cause if known
- Environmental conditions
  - Geographic – farm, inner city, near Love Canal?
  - Economic status – affluent, poverty, homeless
  - Abusive environment
  - Risk behaviors – smoking, alcohol, occupational exposure
- Health conditions of individuals
  - Chronic diseases
  - Mental illness

# Pedigree

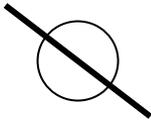


# Building a Pedigree

Symbols:

Male  Female 

Pregnancy 

Death indicated by \ through symbol 

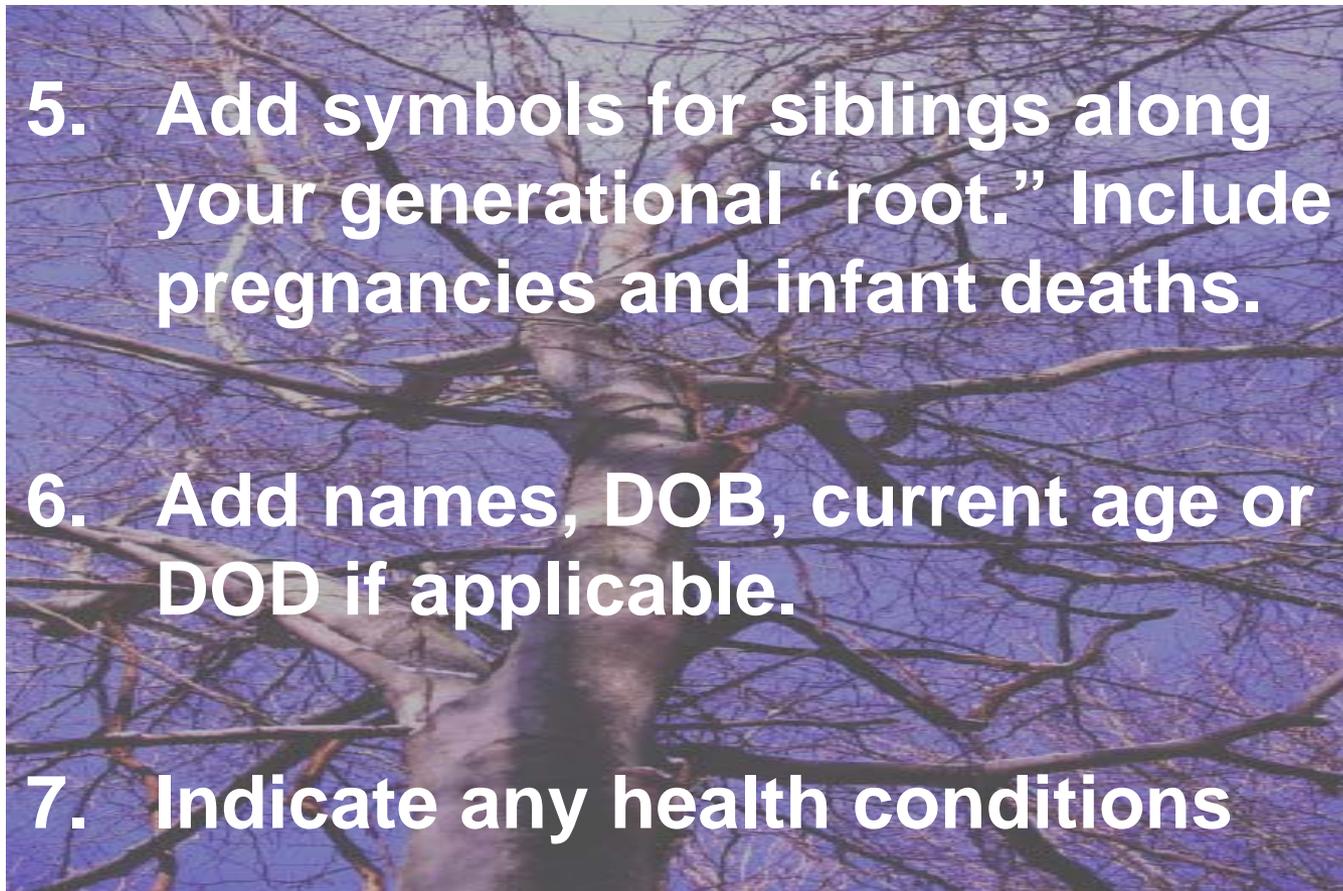
Affected  Carrier  Or 

Marriage = Divorce ≠

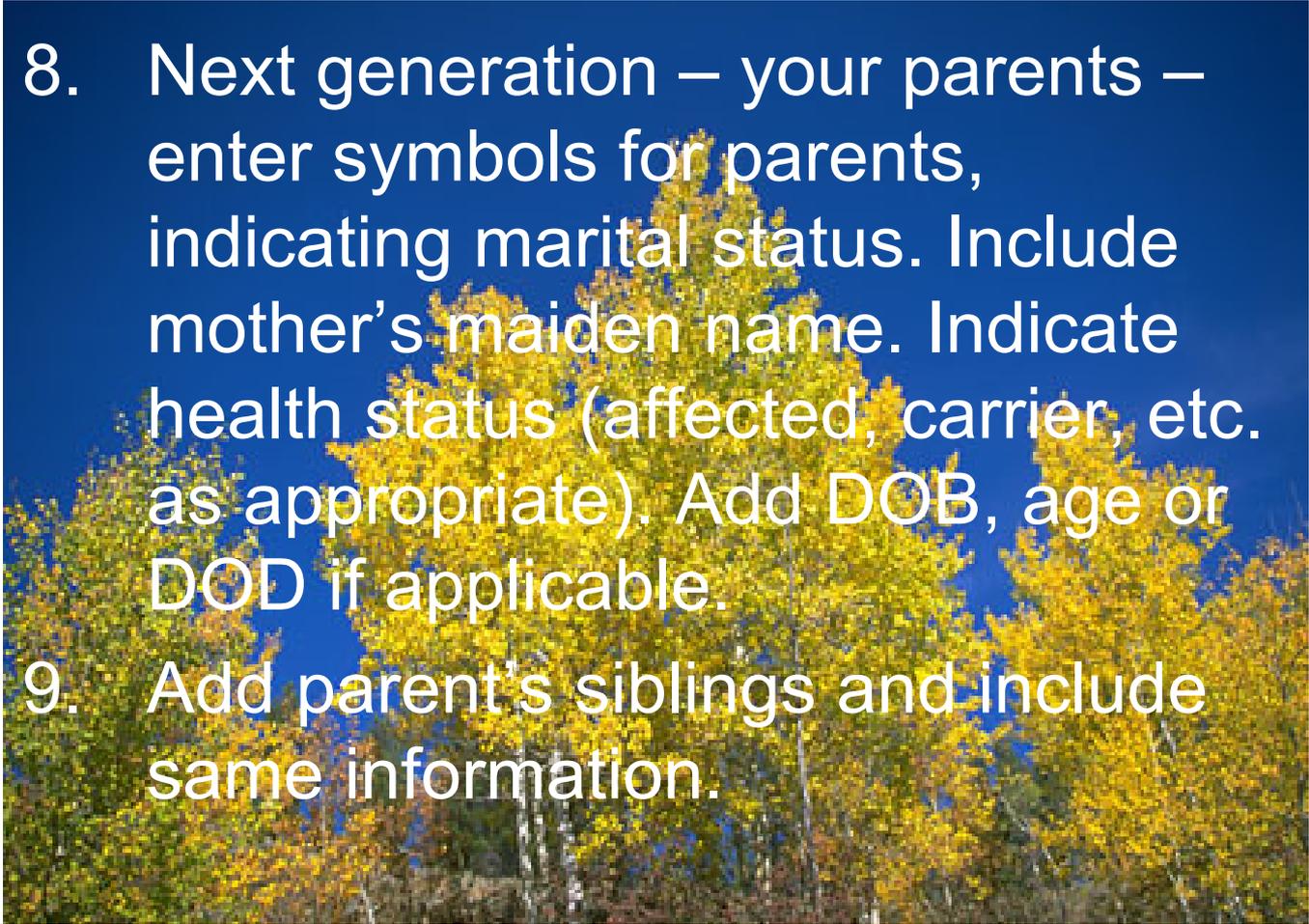
# Planting a Family Tree

- 1. Begin with your generation**
- 2. Enter the symbol to indicate yourself and any disease status**
- 3. Under your symbol, write name, DOB and age**
- 4. If you are a carrier or affected, indicate condition**

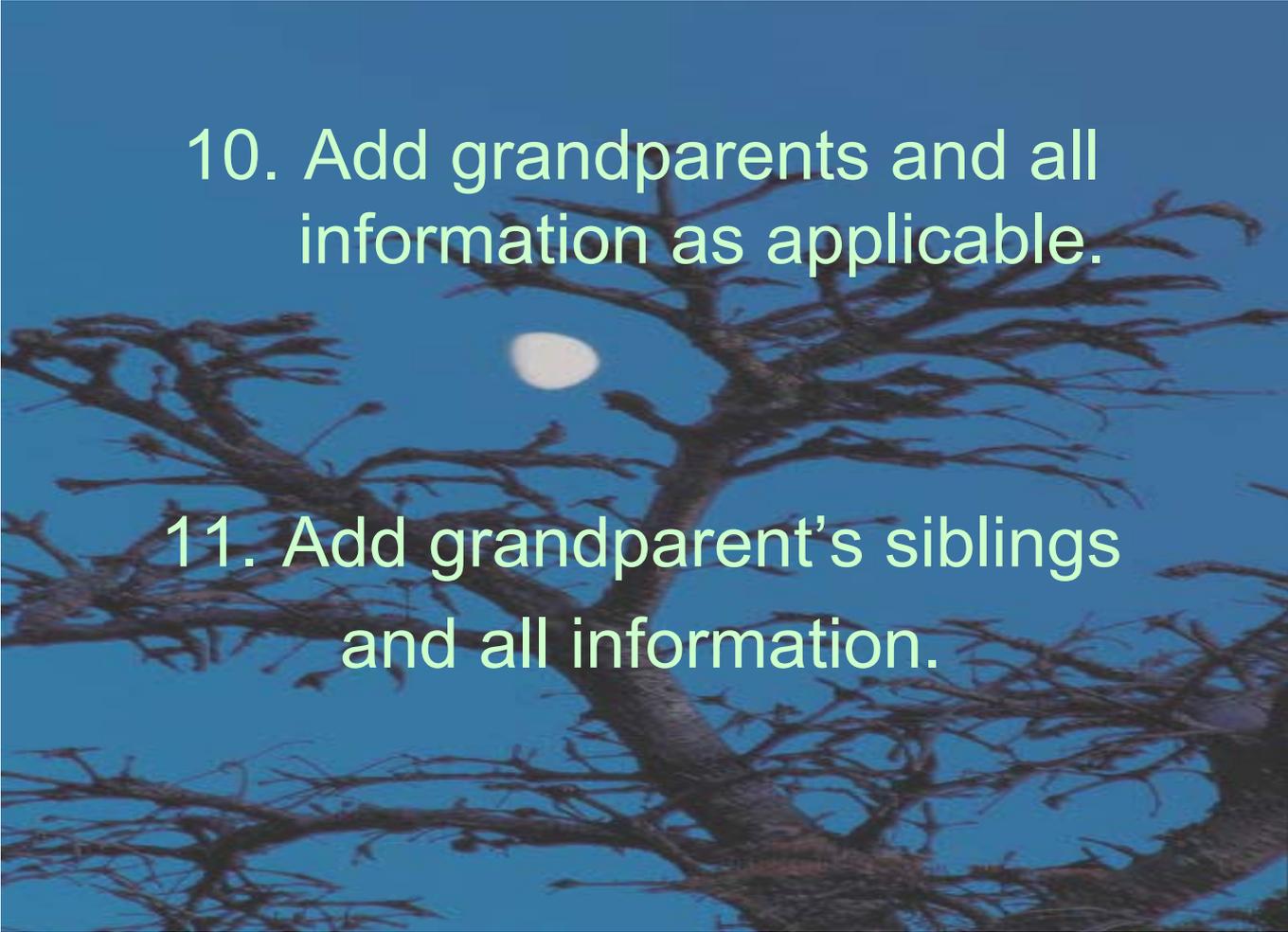
# Building Your Family Tree



# Growing Your Family Tree

- 
8. Next generation – your parents – enter symbols for parents, indicating marital status. Include mother's maiden name. Indicate health status (affected, carrier, etc. as appropriate). Add DOB, age or DOD if applicable.
  9. Add parent's siblings and include same information.

# Branching Out



10. Add grandparents and all information as applicable.

11. Add grandparent's siblings and all information.

# How do I use my family health history?

- Share results with personal physician or health care practitioner
- Use as a “living document.” Update regularly, share with other family members (especially offspring), and take with you as you change health care providers
- If a condition seems to run in the family, discuss consultation with a genetic professional

Alter your environment and/or behaviors  
to decrease risk

# What Do You See in Your Family Tree?

- Are there any conditions that show up across generations or through siblings?
- Any “red flags?” 
- Any consistent environmental risks or risk behaviors?



# “Red Flags”

Some “red flags” that may suggest a genetic condition or inherited susceptibility to a disease:

- Several closely related individuals affected with the same or related conditions. Examples include breast and ovarian cancer; colon and endometrial cancer; diabetes, heart disease, and hypertension; thyroid cancer and colon polyps.
- A common disorder with earlier age of onset than typical, especially if it occurs in multiple family members. Examples include Breast cancer < age 45-50 years (premenopausal), heart disease < age 40-60 years, colon cancer < age 45-50 years
- Sudden death in someone who seemed healthy
- Individual or couple with more than three pregnancy losses
- Medical problems in children of parents who are closely related (e.g. second cousins or closer)

# Points to Ponder

- The personal nature of this information can raise concerns about discriminatory practices (work or insurance), confidentiality, and changes in family dynamics. Federal legislation is being considered to protect patients from discrimination based on genetic information (GINA – passed by the House, currently in the Senate, held up by one senator from Oklahoma).
- Also the potential for psychological, social, and economic consequences of “labeling” an individual at risk for disease. These might include parental guilt, knowledge of paternity, and unwanted medical disclosures

# More Points to Ponder

- Some people do not want to know their risk for inherited disease. Consider other's feelings when sharing information that may affect them.
- Even adopted individuals can benefit from knowing the history of their adopted family. Nature vs. nurture?
- Some familial "disorders" may be passed down to the next generation, even though they aren't genetically inherited\*; e.g. domestic abuse, substance abuse, obesity

\*at least not known at this time to be genetically hereditary

## Family History Resources

- **The Surgeon General's Family History Initiative**

<http://www.hhs.gov/familyhistory/>The Surgeon General has declared Thanksgiving the annual National Family History Day. This site contains information and a tool, called “My Family Health Portrait”, for creating a personalized family health history.

- **CDC, Office of Genomics and Disease Prevention, Family History**

<http://www.cdc.gov/genomics/public/famhistMain.htm> Offers valuable information about family health history and includes FAQs, fact sheets and case studies, news articles, multimedia presentations, and disease-specific information.

- **National Human Genome Research Institute**

<http://genome.gov/health> Provides information about genetic testing, key issues in genetics and health, fact sheets, and a glossary of terms.

## Disease Resources

Breast Cancer, Ovarian Cancer, and Colorectal Cancer

- **CDC, Cancer Prevention and Control**

<http://www.cdc.gov/cancer/> Includes information about public health programs, research, monitoring, and education for different types of cancer.

- **National Cancer Institute**

<http://www.cancer.gov/> Includes information about screening and testing, treatment, research studies, and clinical trials for different types of cancer.

- **American Cancer Society**

<http://www.cancer.org/> The American Cancer Society is a national voluntary organization that is committed to fighting cancer through advocacy, patient education, research, rehabilitation, and patient services.

# Disease Resources

## Diabetes

- **CDC, Diabetes Public Health Resource**

<http://www.cdc.gov/diabetes/consumer/> Contains information about treating and preventing diabetes and complications associated with the disease. It also includes tips and programs that will help people increase their physical activity and eat a healthier diet.

- **National Institute of Diabetes and Digestive and Kidney Diseases, National Diabetes Information Clearinghouse (NDIC)**

<http://diabetes.niddk.nih.gov/> The NDIC is a service of the National Institute of Diabetes and Digestive and Kidney Diseases. The website contains resources and information for the public and health professionals about diabetes and its treatment.

- **American Diabetes Association**

<http://www.diabetes.org> The American Diabetes Association is the nation's leading nonprofit health organization providing diabetes research, information and advocacy.

## Disease Resources

### Coronary Heart Disease and Stroke

- **CDC, Cardiovascular Health**

[http://www.cdc.gov/cvh/library/fact\\_sheets.htm](http://www.cdc.gov/cvh/library/fact_sheets.htm) The mission of the CDC's Cardiovascular Health program is to provide public health leadership to improve cardiovascular health for all, reduce the burden, and eliminate the disparities associated between heart disease and stroke. This site provides fact sheets and information about cardiovascular diseases.

- **National Institute of Neurological Disorders and Stroke**

[http://www.ninds.nih.gov/health\\_and\\_medical/disorders/stroke.htm](http://www.ninds.nih.gov/health_and_medical/disorders/stroke.htm) Provides information and links to other resources about stroke and stroke-related research.

- **National Heart, Lung, and Blood Institute**

<http://www.nhlbi.nih.gov/health/public/heart/index.htm> Provides a list of resources, including the fact sheets and web tools about heart and vascular disease.

- **American Heart Association**

<http://www.americanheart.org> The American Heart Association is a national voluntary health agency whose mission is to reduce disability and death from cardiovascular diseases and stroke.

## Lifestyle Resources

- **Agency for Healthcare Research and Quality, Consumers & Patients**

<http://www.ahrq.gov/consumer/>The Agency for Healthcare Research and Quality has put together consumer and patient guides for a number of health topics. These guides were developed based on the agency's clinical practice guides for physicians.

- **CDC, 5 A Day**

<http://www.cdc.gov/nccdphp/dnpa/5ADay/index.htm> 5 A Day for Better Health is a national program and partnership that seeks to increase the number of daily servings of fruits and vegetables Americans eat to five or more. The 5 A Day program provides easy ways to add more fruits and vegetables into your daily eating patterns.

- **CDC, Alcohol and Public Health**

<http://www.cdc.gov/alcohol/about.htm> Provides information about alcohol-related health effects, alcohol disease impact, and CDC-sponsored programs.

•**CDC, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity, Overweight and Obesity**

<http://www.cdc.gov/nccdphp/dnpa/obesity/index.htm> Provides information about health-related effects of being overweight/obese, and recommended strategies and resources to help people achieve a healthy weight.

•**CDC, National Center for Chronic Disease Prevention and Health Promotion, Physical Activity**

<http://www.cdc.gov/nccdphp/dnpa/physical/index.htm> Provides information about the health benefits of physical activity.

•**HHS-Healthy Lifestyles and Disease Prevention Initiative**

<http://www.smallstep.gov/> Smallstep.gov is the web component of a national advertising campaign from the Department of Health and Human Services that is aimed at reducing the rates of overweight and obesity in the United States. The website includes tips and web tools to help people achieve a healthy weight.

•**HHS, Smoke-free.gov**

<http://www.smokefree.gov/1-800-QUIT-NOW> (1-800-784-8669) Smokefree.gov is an online resource designed to help and support smokers who want to quit and non-smokers who want to help. The site has a step-by-step cessation guide, and interactive tools including a National Cancer Institute-staffed instant messaging service, local and national quitlines, and publications for download.

•**Healthfinder.gov**

<http://www.healthfinder.gov> Healthfinder is a free portal to reliable health information, developed by the U.S. Department of Health and Human Services. The site provides an easy-to-use, searchable index of carefully reviewed health information from over 1,500 government agencies, nonprofit organizations and universities.

•**HRSA-Bright Futures for Women's Health and Wellness**

<http://www.hrsa.gov/womenshelaht/mybrightfuture/menu.html> Provides an online version of the Physical Activity and Healthy Eating Guide and Wallet Card for Young Women. It will help young women learn about healthy eating and physical activity and help them talk with their health care provider to set and reach goals in areas that need improvement.

•**HRSA-Consumer Education: Living Healthy - An Educated Choice**

<http://www.hrsa.gov/ConsumerEd/> Provides health-related information which will help families live healthier lives.

# For More Information

Iowa Department of Public Health  
Center for Congenital and Inherited Disorders  
321 E. 12<sup>th</sup> Street

Lucas State Office Building  
Des Moines, IA 50319-0076

Kimberly Noble Piper, RN, BS, CPH  
State Genetics Coordinator

1-800-383-3826

[kpiper@idph.state.ia.us](mailto:kpiper@idph.state.ia.us)

[www.idph.state.ia.us/genetics](http://www.idph.state.ia.us/genetics)