Cardiovascular Disease and Cancer
Cardiovascular Disease: An Epidemiological Overview

- Cardiovascular Disease
  - Cardiovascular disease is the cause 1:3 deaths in the United States.
  - For all ages combined, CVD is the leading cause of death.
  - More than 80 million Americans—1 out of every 3 adults—will have some type of CVD.
  - The best defense against CVD is to prevent it from developing in the first place.
  - Probability of dying from these diseases
    - CVD 47%
    - Cancer 22%
    - Accidents 3%
    - Diabetes 2%
    - HIV <1%
Prevalence of Cardiovascular Diseases (CVDs) in Adults Aged 20 and Older by Age and Sex

Men with CVD; each heart = 8% of the population
Women with CVD; each heart = 8% of the population
§ Coronary Heart Disease (CHD)-
§ Myocardial Infarction (MI) “Heart Attack”

- Greatest killer
- Myocardial infarction (MI) or heart attack
- Sudden death
  - 40% die within one hour of 1st heart attack
The Heart: A Mighty Machine

- Four chambers
  - Two upper chambers are called atria
  - Two lower chambers are called ventricles
- Valves regulate the flow of blood.
Blood Flow within the Heart

1. Deoxygenated blood flows into the right atrium from the superior and inferior venae cavae.

2. Blood moves from the right atrium into the right ventricle; from there it is pumped through the pulmonary arteries into the lungs.

3. Blood picks up oxygen and discards carbon dioxide in the lungs; it then goes through the pulmonary veins into the left atrium.

4. Oxygenated blood is forced from the left atrium into the left ventricle; from there it is pumped through the aorta into the rest of the body’s blood vessels.
Understanding the Cardiovascular System

- Heart Function
  - Deoxygenated blood enters the right atrium
  - From the right atrium, blood travels to the right ventricle
  - Blood is pumped through the pulmonary artery to the lungs, where it receives oxygen
  - Oxygenated blood from the lungs returns to the left atrium of heart
  - Blood from the left atrium moves into the left ventricle
  - The left ventricle pumps blood through the aorta to all body parts
Electrical System of the Heart
The Beating Heart
Percentage Breakdown of Deaths from Cardiovascular Disease in the United States

- Coronary heart disease: 52%
- Stroke: 17%
- High blood pressure: 7%
- Heart failure*: 7%
- Other: 14%
- Diseases of the arteries: 4%
Cardiovascular Disease

- **Atherosclerosis** *(CAD—coronary artery disease)* – damages arteries on the outside of the heart
  - Arteriosclerosis – thickening and hardening of the arteries
  - Hyperlipidemia – abnormally high lipid level which increases arterial plaque
  - Peripheral artery disease (PAD) – atherosclerosis of the feet, legs, calves, or arms
  - Inflammatory risk
Warning Signs of a Heart Attack

- Anxiety
- Breathing problem – shortness of breath
- Chest pain or heaviness (indigestion)
- Discomfort in arms, neck, shoulders

First aid
- **Aspirin**
- Be calm – keep person calm
- **Call 911**
Atherosclerosis and Coronary Heart Disease

Left coronary artery
Cardiac vein

Right coronary artery
Cardiac veins

Normal artery
Normal blood flow

Narrowed artery
Restricted blood flow

Atherosclerotic plaque
Cardiovascular Disease

- **Angina Pectoris = Chest Pain**
  - *Ischemia*—condition that reduces the heart’s blood and oxygen supply
  - People with ischemia often suffer *angina pectoris*, or chest pain and pressure.
  - Treatments include calcium channel blockers, beta-blockers, and nitroglycerin
Arrhythmias

- Irregularity in heart rhythm – “the electrical system”
- Over 4 million Americans have experienced some type of arrhythmia
Types of Arrhythmia

- Atrial fibrillation
Types of Arrhythmia

- Heart block

![Diagram showing normal heart and heart block]
Types of Arrhythmia

- PVC’s

PREMATURE VENTRICULAR CONTRACTION
A single impulse originates at right ventricle

Time interval between normal R peaks is a multiple of R-R interval
Types of Arrhythmia

- Bradycardia – pulse below 60

Bradycardia ECG

Slow heart rate or when SA node does not send out enough signals
Types of Arrhythmia

- Tachycardia – pulse above 100
Sudden Death in Athletes

- Most occur during or immediately after exercise
- Some occur at rest or during sleep
- Athletes Who Have Died Suddenly
  - Darryl Kile, age 33 – Pitcher St. Louis Cardinals
  - Reggie Lewis, age 27 – Boston Celtics
  - Ryan Shay 2007 – Marathon runner
  - Flo Jo (Florence Griffith-Joyner), age 38 – Olympic sprinter died, seizure secondary to steroids
  - Hank Gathers 1990, age 23 – Loyola Marymount Basketball, abnormal heart arrhythmia
  - Korey Stringer 2001 – NFL Minnesota Vikings
Sudden Death in Athletes

- **Causes:**
  - #1 (46%) – Congenital malformations of the heart.
    - Hypertrophic cardiomyopathy (HCM) is a genetic disease.
      - Ventricle so thickened with partial obstruction of blood flow out of the left side of the heart
  - #2 (25%) – Congenital coronary artery anomalies
  - #3 (1%) – Long QT syndrome
Sudden Death in Athletes

- **#4 – Other**
  - Asthma
  - Exercise induced anaphylaxis
  - Heat stroke
  - Head trauma

- **#5 – Drug abuse**
  - Ephedrine
  - Cocaine
  - Amphetamines
  - Anabolic steroids
  - Alcohol
  - Caffeine
  - Energy drinks

- Risky Sports – basketball, football, track
Cardiovascular Disease

- **Congestive Heart Failure (CHF)**
  - Affects over 5 million Americans
  - Single most frequent cause of hospitalization in United States
  - Heart muscle is weak; fluid builds up in the lungs
Anatomy of a “Stroke”
Stroke – CVA Cerebral Vascular Accident

- 6.5 million Americans suffer strokes every year.
- Blood supply to brain is interrupted.
- Transient ischemic attacks (TIAs) are brief interruptions of the blood supply to the brain that cause temporary impairment.
- Today, stroke is a leading cause of serious long-term disability and contributes a significant amount to Medicaid and Medicare expenses for older Americans, particularly women.
- Watch your blood pressure – one cause is high blood pressure.
- Warning signs – Face, Arms, Smile, Tongue.
- First Aid – Be calm, Call 911.
Testosterone and Metabolic Syndrome: Research data indicates that in adult men, low testosterone is often linked to a medical occurrence known as "metabolic syndrome." Metabolic syndrome is defined as a group of the most dangerous heart attack and stroke risk factors. The three main conditions associated with metabolic syndrome are central obesity (belly fat), insulin resistance (type II diabetes) and hypertension (high blood pressure). Higher than normal triglyceride levels and low HDL (good) cholesterol levels are also known risk factors for metabolic syndrome.
Reducing Your Risks

Metabolic Syndrome: Quick Risk Profile

• Definition: increases a person’s risk of CVD (cardiovascular disease), Stroke, and diabetes by 300%

• Prevention: control blood pressure, control blood sugar, manage your lipid profile

• For a diagnosis of metabolic syndrome, a person would have three or more of the following risks:
  • Abdominal obesity
  • Elevated blood fat (triglycerides greater than 150 units)
  • Low levels of HDL (“good”) cholesterol
  • Elevated blood pressure greater than 130/85 mm/Hg
  • Elevated fasting glucose greater than 100 mg/dL
  • High levels of C-reactive proteins indicating an inflammation is present
Reducing Your Risks

- **Modifiable Risks**
  1. Maintain a healthy weight – figure your ideal weight
  2. Control blood pressure – 120/80 or less
  3. Manage stress – no stress
  4. Cut back on saturated fats and cholesterol.
     - Low-density lipoproteins (LDL) – below 100
     - High-density lipoproteins (HDL) – above 40
     - Triglycerides – keep below 100
  5. Exercise regularly – 5 days, 30 minutes
  6. Control diabetes – fasting blood sugar below 100
  7. Avoid tobacco products of all kinds
## Recommended Cholesterol Levels for Adults

### Total Cholesterol Level (lower numbers are better)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 200 mg/dL</td>
<td>Desirable level that puts you at lower risk for coronary heart disease.</td>
</tr>
<tr>
<td>200 to 239 mg/dL</td>
<td>Borderline high</td>
</tr>
<tr>
<td>240 mg/dL and above</td>
<td>High blood cholesterol. A person with this level has more than twice the risk of coronary heart disease as someone whose cholesterol is below 200 mg/dL.</td>
</tr>
</tbody>
</table>

### HDL Cholesterol Level (higher numbers are better)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 40 mg/dL (for men)</td>
<td>Low HDL cholesterol. A major risk factor for heart disease.</td>
</tr>
<tr>
<td>Less than 50 mg/dL (for women)</td>
<td>Low HDL cholesterol. A major risk factor for heart disease.</td>
</tr>
<tr>
<td>60 mg/dL and above</td>
<td>High HDL cholesterol. An HDL of 60 mg/dL and above is considered to be protective against heart disease.</td>
</tr>
</tbody>
</table>

### LDL Cholesterol Level (lower numbers are better)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100 mg/dL</td>
<td>Optimal</td>
</tr>
<tr>
<td>100 to 129 mg/dL</td>
<td>Near or above optimal</td>
</tr>
<tr>
<td>130 to 159 mg/dL</td>
<td>Borderline high</td>
</tr>
<tr>
<td>160 to 189 mg/dL</td>
<td>High</td>
</tr>
<tr>
<td>190 mg/dL and above</td>
<td>Very high</td>
</tr>
</tbody>
</table>

### Triglyceride Level (lower numbers are better)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 150 mg/dL</td>
<td>Normal</td>
</tr>
<tr>
<td>150–199 mg/dL</td>
<td>Borderline high</td>
</tr>
<tr>
<td>200–499 mg/dL</td>
<td>High</td>
</tr>
<tr>
<td>500 mg/dL and above</td>
<td>Very high</td>
</tr>
</tbody>
</table>

# Blood Pressure Classifications

<table>
<thead>
<tr>
<th>Classification</th>
<th>Systolic Reading (mm Hg)</th>
<th>Diastolic Reading (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120</td>
<td>&lt;80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120–139</td>
<td>80–89</td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1</td>
<td>140–159</td>
<td>90–99</td>
</tr>
<tr>
<td>Stage 2</td>
<td>≥160</td>
<td>≥100</td>
</tr>
</tbody>
</table>

**Note:** If systolic and diastolic readings fall into different categories, treatment is determined by the highest category. Readings are based on the average of two or more properly measured, seated readings on each of two or more health care provider visits.

Reducing Your Risks

- **Nonmodifiable Risks**
  - Heredity – KNOW YOUR FAMILY HISTORY
  - Race and ethnicity – African American males – highest risk: high blood pressure, Myocardial Infarction, stroke
  - Age – men and women over 65 at greatest risk
  - Gender – men and women after menopause

- **Other Risk Factors Being Studied**
  - Inflammation and C-reactive protein – caused by bacteria, trauma, and toxins
  - Homocysteine – inflames the inner lining of the arterial walls and promotes fat deposits on the damaged wall and the development of blood clots
  - Infectious diseases: H.pylori (ulcers), C.pneumonia, herpes simplex virus (HSV)

- **Prevention**
  - Folic acid
Techniques for Diagnosing Cardiovascular Disease

1. Electrocardiogram (ECG)
2. Echocardiogram checks the valves and chambers of the heart. It assesses heart rate and the movement of blood through the heart
3. Stress test: exercise on a treadmill using an EKG to determine any stress on the heart
4. Angiography – cardiac catheterization, looks at coronary arteries
5. Ultrafast computed tomography (CT) scan – evaluates ventricular function and measures calcium deposits
6. Cardiac calcium score – measures calcified plaque in arteries
7. Magnetic resonance imaging (MRI) – assess damage from a heart attack and diseases of large vessels
8. Positron emission tomography (PET) scan – 3 dimensional images as blood passes through the heart
Weapons Against Cardiovascular Disease

- **Bypass Surgery and Angioplasty, Medications**
  - **Coronary bypass surgery** helps patients who suffer from coronary blockages of heart attacks.
    - In bypass surgery, a blood vessel is taken from another site in the patient’s body and implanted to “bypass” blocked coronary arteries.
  - **Angioplasty** uses a balloon to open the artery to allow blood to flow more freely.
    - Angioplasty carries fewer risks and may be more effective in selected cases than bypass surgery.
  - **Medications**
    - Statins: (Lipitor) Chemicals to lower cholesterol
    - Blood pressure medications – lower blood pressure and stress on the heart
    - Beta blockers – slow the heart rate
    - Digitalis – increase muscle strength of heart and lower pulse rate
Coronary Bypass Surgery

- Aorta
- Bypass using mammary artery
- Bypass using saphenous vein
- Coronary artery
- Blockage

- Mammary artery
- Saphenous vein

Detail of arterial blockage:

- Plaque
Angioplasty

- Balloon catheter at vessel narrowing
- Plaque
- Catheter with uninflated balloon
- Catheter with inflated balloon
- Aorta
- Guiding catheter
- Coronary arteries
- Guide catheter
Can Aspirin Help Heart Disease?

- Low doses of aspirin (75 to 81 mg) daily can be beneficial to heart patients
- Blood-thinning properties
- Use enteric coated aspirin
An Overview of Cancer

- Second leading cause of death in the United States
- Early detection and advances in technology have improved prognosis for many.

Why do you think the rate of cancer is so high in the U.S. today?
An Overview of Cancer

What Is Cancer?

- Uncontrolled growth and spread of abnormal cells
- **Neoplasms** – a tumor or a new group of cells serving no physiological purpose
- **Malignant tumors** – grow and spread to other organs
- **Benign tumors** – grows only it stays in one organ
- **Metastasis** - spread of the tumor to surrounding organs and tissues
Metastasis

Genetically altered skin cell

Cell divides more rapidly than normal

Cells change form

In situ cancer
Cells stay in one place

Malignant tumor (cancer)
Cancer cells invade normal tissue and enter blood and lymph; metastases form at distant sites

Normal underlying connective or muscle tissue

Blood vessel

Direction of blood flow

Invasion

Metastases
What Causes Cancer?

Lifestyle Risks

- Tobacco use – lung, lip, tongue, throat, stomach, pancreas, and bladder
- Poor nutrition, physical inactivity, and obesity – colon and breast
- Stress and psychosocial risks – all types
- Sun exposure – melanoma, basal and squamous cells

Genetic and Physiological Risks

- Genetic predisposition
- Oncogenes—cancer-causing gene that typically stays dormant but can be activated; *HMG-I* gene in leukemia
- Reproductive and hormonal risks
  - Testicular
  - Ovarian
  - Breast
  - Uterine
  - Cervical
# Probability of Developing Invasive Cancers during Selected Age Intervals by Sex, United States 2003-2005

<table>
<thead>
<tr>
<th>Site</th>
<th>Sex</th>
<th>Birth to age 39</th>
<th>Ages 40 to 59</th>
<th>Lifetime</th>
</tr>
</thead>
<tbody>
<tr>
<td>All types†</td>
<td>Male</td>
<td>1 in 70</td>
<td>1 in 12</td>
<td>1 in 2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1 in 48</td>
<td>1 in 11</td>
<td>1 in 3</td>
</tr>
<tr>
<td>Breast</td>
<td>Female</td>
<td>1 in 208</td>
<td>1 in 26</td>
<td>1 in 8</td>
</tr>
<tr>
<td>Colon and rectum</td>
<td>Male</td>
<td>1 in 1,296</td>
<td>1 in 109</td>
<td>1 in 18</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1 in 1,343</td>
<td>1 in 138</td>
<td>1 in 20</td>
</tr>
<tr>
<td>Lung and bronchus</td>
<td>Male</td>
<td>1 in 3,398</td>
<td>1 in 101</td>
<td>1 in 13</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1 in 2,997</td>
<td>1 in 124</td>
<td>1 in 16</td>
</tr>
<tr>
<td>Melanoma of the skin§</td>
<td>Male</td>
<td>1 in 645</td>
<td>1 in 157</td>
<td>1 in 39</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1 in 370</td>
<td>1 in 189</td>
<td>1 in 58</td>
</tr>
<tr>
<td>Prostate</td>
<td>Male</td>
<td>1 in 10,002</td>
<td>1 in 41</td>
<td>1 in 6</td>
</tr>
<tr>
<td>Uterine cervix</td>
<td>Female</td>
<td>1 in 651</td>
<td>1 in 368</td>
<td>1 in 145</td>
</tr>
<tr>
<td>Uterine corpus</td>
<td>Female</td>
<td>1 in 1,499</td>
<td>1 in 140</td>
<td>1 in 40</td>
</tr>
</tbody>
</table>

*For people free of cancer at beginning of age interval.
†Excludes basal and squamous cell skin cancers and in situ cancers except in the urinary bladder.
§Statistic is for whites only.

What Causes Cancer?

- **Occupational and Environmental Risks**
  - Exposure to asbestos, nickel, chromate, and benzene – Steve McQueen – mesothelioma from asbestos
  - Exposure to radioactive substances
  - Chemicals in foods – preservatives, dyes
  - Medical treatment risks – X-ray, radioactive studies

- **Infectious Diseases and Cancer**
  - Hepatitis B and hepatitis C
    - Liver cancer
  - Human papillomavirus (HPV)
    - Cervical cancer
    - Esophageal, lip tongue, throat, mouth, and cancer of the penis
Go Green against Cancer

To Reduce the Number of Carcinogens

• Leave your car at home.
• Choose organic foods when possible.
• Shop for ecofriendly home furnishings.
• Turn off your lights when you leave a room.
• Use “green” paper.
• Buy ecofriendly hygiene products.
• Avoid dry cleaning.
Types of Cancer

- Categories of Cancer
  - **Carcinomas** – skin, mouth, mucus membranes, lining of most body cavities
  - **Sarcomas** – bones, muscles, connective tissue
  - **Lymphomas** – lymphatics – Hodgkins Disease
  - **Leukemias** – bone marrow and spleen causing abnormal increase in white blood cells

- Lung Cancer
  - **Leading** cause of cancer deaths for men and women
  - Symptoms include a persistent cough, blood-streaked sputum, chest pain, and recurrent attacks of pneumonia or bronchitis
  - Hazards of smoking and secondhand smoke
### Leading Sites of New Cancer Cases and Deaths, 2009 Estimates

#### Estimated New Cases of Cancer *

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prostate</strong></td>
<td>192,280 (25%)</td>
</tr>
<tr>
<td><strong>Lung &amp; bronchus</strong></td>
<td>116,090 (15%)</td>
</tr>
<tr>
<td><strong>Colon &amp; rectum</strong></td>
<td>75,590 (10%)</td>
</tr>
<tr>
<td><strong>Urinary bladder</strong></td>
<td>52,810 (7%)</td>
</tr>
<tr>
<td><strong>Melanoma of the skin</strong></td>
<td>39,080 (5%)</td>
</tr>
<tr>
<td><strong>Non-Hodgkin lymphoma</strong></td>
<td>35,990 (5%)</td>
</tr>
<tr>
<td><strong>Kidney &amp; renal pelvis</strong></td>
<td>35,430 (5%)</td>
</tr>
<tr>
<td><strong>Leukemia</strong></td>
<td>25,630 (3%)</td>
</tr>
<tr>
<td><strong>Oral cavity &amp; pharynx</strong></td>
<td>25,240 (3%)</td>
</tr>
<tr>
<td><strong>Pancreas</strong></td>
<td>21,050 (3%)</td>
</tr>
<tr>
<td><strong>All Sites</strong></td>
<td>766,130 (100%)</td>
</tr>
</tbody>
</table>

#### Estimated Deaths from Cancer *

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lung &amp; bronchus</strong></td>
<td>88,900 (30%)</td>
</tr>
<tr>
<td><strong>Prostate</strong></td>
<td>27,360 (9%)</td>
</tr>
<tr>
<td><strong>Colon &amp; rectum</strong></td>
<td>25,240 (9%)</td>
</tr>
<tr>
<td><strong>Pancreas</strong></td>
<td>18,030 (6%)</td>
</tr>
<tr>
<td><strong>Leukemia</strong></td>
<td>12,590 (4%)</td>
</tr>
<tr>
<td><strong>Liver &amp; intrahepatic bile duct</strong></td>
<td>12,090 (4%)</td>
</tr>
<tr>
<td><strong>Esophagus</strong></td>
<td>11,490 (4%)</td>
</tr>
<tr>
<td><strong>Urinary bladder</strong></td>
<td>10,180 (3%)</td>
</tr>
<tr>
<td><strong>Non-Hodgkin lymphoma</strong></td>
<td>9,830 (3%)</td>
</tr>
<tr>
<td><strong>Kidney &amp; renal pelvis</strong></td>
<td>8,160 (3%)</td>
</tr>
<tr>
<td><strong>All Sites</strong></td>
<td>292,540 (100%)</td>
</tr>
</tbody>
</table>

*Excludes basal and squamous cell skin cancers and in situ carcinoma except urinary bladder. Percentages may not total 100% due to rounding.
Types of Cancer

Breast Cancer

- 1 in 8 women will have breast cancer
- Risk increases with age
- Risk factors supported by research – BRCA 1 and BRCA 2 genes for women with family history
- Prevention (self-exam and mammography)
- Treatment
  - Surgical
  - Selective estrogen-receptor modulators (SERMs)
5 year survival rate

- Stage 0 – 93%
- Stage 1 – 88%
- Stage 2 – 74 – 81%
- Stage 3 – 41 – 67%
- Stage 4 – 15%
Breast Awareness and Self-Exam

1. Perform exam lying down.
2. Use pads of the 3 middle fingers.
3. Follow an up-and-down pattern.
Types of Cancer

- Colon and Rectal Cancer
  - Third most common cancer in men and women
  - Family history of polyps or colon cancer
  - Warning signals
    - Abdominal pain or swelling
    - Changes in bowel habit
    - Constipation
    - Dark tarry stool
    - Rectal bleeding
  - Colonoscopy
Colonoscopy
Colon Cancer and Polyps
Skin Cancer

Affects over 1 million people every year

Types of skin cancer:

- **Basal cell**: crusty bump that bleeds;
- **Squamous cell**: flat, grow quickly, **dangerous**
- **Malignant melanoma**—Very Dangerous
Types of Skin Cancers

a Malignant melanoma  b Basal cell carcinoma  c Squamous cell carcinoma
Malignant Melanoma

- **ABCD** rule about melanoma
  - Asymmetry
  - Border irregularity
  - Color
  - Diameter bigger than a pencil eraser
Types of Cancer

- **Prostate Cancer**
  - Most frequently diagnosed cancer in American males today, excluding skin cancer, and is the second leading cause of cancer deaths in men after lung cancer
  - Estimated 1 in 33 men will die from prostate cancer in his lifetime
  - Prostate cancer risks increase with age
  - PSA at age 40
Ovarian Cancer

- Fifth leading cause of death in women
- Unexplained enlargement of the abdomen is a common warning sign
- Prevention: annual pelvic exams for life
Types of Cancer

- Cervical and Endometrial (Uterine) Cancer

- Cervical
  - Regular Pap tests are crucial for early detection
  - Risk: early onset of intercourse secondary HPV
  - PREVENTION: Gardisil vaccine

- Uterine
  - Warning: abnormal bleeding between periods – women 35 years and older
  - No periods (amenorrhea) in women of childbearing age unless on hormones.
Pap Smear

Normal cervix

Cervical dysplasia

Normal cervical cells

Cancerous or pre-cancerous cervical cells
Testicular Cancer-The cancer of YOUNG men

- Ages **15 to 35** are at the greatest risk
- Cause is unknown-may be HPV
- Men with undescended testicles appear to be at the greatest risk
Undescended testicle
Testicular Self-Exam
Detecting Cancer

- The earlier the cancer is diagnosed, the better prospect there is for survival
- Practice self-exam and checkups
- Several high-tech tools have been developed to help detect cancer
  - Magnetic Resonance Imaging (MRI)
  - Computerized axial tomography scanning (CT scan)
### Screening Guidelines for the Early Detection of Cancer in Average-Risk Asymptomatic People

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Population</th>
<th>Test or Procedure</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breast</strong></td>
<td>Women, aged 20+</td>
<td>Breast self-examination (BSE)</td>
<td>Beginning in their early 20s, women should be told about the benefits and limitations of BSE. The importance of prompt reporting of any new breast symptoms to a health professional should be emphasized. Women who choose to do BSE should receive instruction and have their technique reviewed on the occasion of a periodic health examination. It is acceptable for women to choose not to do BSE or to do BSE irregularly. For women in their 20s and 30s, it is recommended that CBE be part of a periodic health examination, preferably at least every 3 years. Asymptomatic women aged 40 and over should continue to receive a CBE as part of a periodic health examination, preferably annually.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical breast examination (CBE)</td>
<td>Annual, starting at age 40*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mammography</td>
<td>Annual, starting at age 50</td>
</tr>
<tr>
<td><strong>Colorectal</strong></td>
<td>Men and women, aged 50+</td>
<td>Fecal occult blood test (FOBT) with at least 50% test sensitivity for cancer, or fecal immunochemical test (FIT) with at least 50% test sensitivity for cancer, or Stool DNA test, Flexible sigmoidoscopy, or FOBT* and flexible sigmoidoscopy, or Double-contrast barium enema (DCBE), or Colonoscopy, Computerized tomography (CT) colonography</td>
<td>Interval uncertain, starting at age 50 Every 5 years, starting at age 50 Annual FOBT (or FIT) and flexible sigmoidoscopy every 5 years, starting at age 50 Every 5 years, starting at age 50 Every 10 years, starting at age 50 Every 5 years, starting at age 50</td>
</tr>
<tr>
<td><strong>Prostate</strong></td>
<td>Men, aged 50+</td>
<td>Digital rectal examination (DRE) and prostate-specific antigen (PSA) test</td>
<td>Health care providers should discuss the potential benefits and limitations of prostate cancer early detection testing with men and offer the PSA blood test and the DRE annually, beginning at age 50, to men who are at average risk of prostate cancer, and who have a life expectancy of at least 10 years.</td>
</tr>
</tbody>
</table>

*FOBT: stool occult blood test

**Table Continued**
## Screening Guidelines for the Early Detection of Cancer in Average-Risk Asymptomatic People

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Population</th>
<th>Test or Procedure</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervix</td>
<td>Women, aged 18+</td>
<td>Pap test</td>
<td>Cervical cancer screening should begin approximately 3 years after a woman begins having vaginal intercourse, but no later than 21 years of age. Screening should be done every year with conventional Pap tests or every 2 years using liquid-based Pap tests. At or after age 30, women who have had three normal test results in a row may get screened every 2 to 3 years with cervical cytology (either conventional or liquid-based Pap test) alone, or every 3 years with a human papillomavirus (HPV) DNA test plus cervical cytology. Women 70 years of age and older who have had three or more normal Pap tests and no abnormal Pap tests in the past 10 years and women who have had a total hysterectomy may choose to stop cervical cancer screening.</td>
</tr>
<tr>
<td>Endometrial</td>
<td>Women, at menopause</td>
<td>At the time of menopause, women at average risk should be informed about risks and symptoms of endometrial cancer and strongly encouraged to report any unexpected bleeding or spotting to their physicians.</td>
<td></td>
</tr>
<tr>
<td>Cancer-Related</td>
<td>Men and women, aged 20+</td>
<td></td>
<td>On the occasion of a periodic health examination, the cancer-related checkup should include examination for cancers of the thyroid, testicles, ovaries, lymph nodes, oral cavity, and skin, as well as health counseling about tobacco, sun exposure, diet and nutrition, risk factors, sexual practices, and environmental and occupational exposures.</td>
</tr>
</tbody>
</table>

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*Beginning at age 40, annual CBE should be performed prior to mammography.*

*Individuals with a personal or family history of colorectal cancer or adenomas, inflammatory bowel disease, or high-risk genetic syndromes should continue to follow the most recent recommendations for individuals at increased or high risk.*

*FOBT as it is sometimes done in physicians’ offices, with the single stool sample collected on a fingertip during a DRE, is not an adequate substitute for the recommended at-home procedure of collecting two samples from three consecutive specimens. Toilet bowl FOBT tests also are not recommended. In comparison with guaiac-based tests for the detection of occult blood, immunochemical tests are more patient friendly, and are likely to be equal or better in sensitivity and specificity. There is no justification for repeating FOBT in response to an initial positive finding.*

*Flexible sigmoidoscopy, together with FOBT, is preferred compared to FOBT or flexible sigmoidoscopy alone.*

*Information should be provided to men about the benefits and limitations of testing so that an informed decision about testing can be made with the clinician’s assistance.*

Facing Cancer

- **Cancer Treatments**
  - Surgery to remove tumor
  - Chemotherapy
  - Radiotherapy
  - Researching genes and cell mutations
  - Immunotherapy
  - Cancer-fighting vaccines
  - Stem cell research
AFTER YEARS OF TELLING PEOPLE CHEMOTHERAPY IS THE ONLY WAY TO TRY ('TRY', BEING THE KEY WORD) TO ELIMINATE CANCER, JOHNS HOPKINS IS FINALLY STARTING TO TELL YOU THERE IS AN ALTERNATIVE WAY.

Cancer Update from Johns Hopkins:

1. **Every person has cancer cells in the body.** These cancer cells do not show up in the standard tests until they have multiplied to a few billion. When doctors tell cancer patients that there are no more cancer cells in their bodies after treatment, it just means the tests are unable to detect the cancer cells because they have not reached the detectable size.

2. Cancer cells occur between 6 to more than 10 times in a person's lifetime.

3. **When the person's immune system** is strong the cancer cells will be destroyed and prevented from multiplying and forming tumors.
4. When a person has cancer it indicates the person has **nutritional deficiencies**. These could be due to genetic, but also to environmental, **food** and lifestyle factors.

5. To overcome the multiple nutritional deficiencies, **changing diet** to eat more adequately and healthy, 4-5 times/day and by including supplements will strengthen the immune system.

6. **Chemotherapy** **involves poisoning** the rapidly-growing cancer cells and also destroys rapidly-growing healthy cells in the bone marrow, gastrointestinal tract etc, and can cause organ damage, like liver, kidneys, heart, lungs etc.

7. **Radiation** while destroying cancer cells also burns, scars and damages healthy cells, tissues and organs.

8. **Initial treatment with chemotherapy and radiation** will often reduce tumor size. However prolonged use of chemotherapy and radiation do not result in more tumor destruction.
9. When the body has too much toxic burden from chemotherapy and radiation the immune system is either compromised or destroyed, hence the person can succumb to various kinds of infections and complications.

10. Chemotherapy and radiation can cause cancer cells to mutate and become resistant and difficult to destroy. Surgery can also cause cancer cells to spread to other sites.

11. An effective way to battle cancer is to starve the cancer cells by not feeding it with the foods it needs to multiply.

*CANCER CELLS FEED ON:

a. Sugar substitutes like NutraSweet, Equal, Spoonful, etc are made with Aspartame and it is harmful. A better natural substitute would be Manuka honey or molasses, but only in very small amounts. Table salt has a chemical added to make it white in color. Better alternative is Bragg's aminos or sea salt.
b. **Milk** causes the body to produce mucus, especially in the gastro-intestinal tract. **Cancer feeds on mucus**. By cutting off milk and substituting with unsweetened soy milk cancer cells are being starved.

c. Cancer cells thrive in an acid environment. **A meat-based diet is acidic** and it is best to eat fish, and a little other meat, like chicken. Meat also contains livestock antibiotics, growth hormones and parasites, which are all harmful, especially to people with cancer.

d. A diet made of **80% fresh vegetables and juice**, whole grains, seeds, nuts and a little fruits help put the body into an **alkaline environment**. About 20% can be from cooked food including beans. Fresh vegetable juices provide live enzymes that are easily absorbed and reach down to cellular levels within 15 minutes to nourish and enhance growth of healthy cells. To obtain live enzymes for building healthy cells try and drink fresh vegetable juice (most vegetables including be an sprouts) and eat some raw vegetables 2 or 3 times a day. **Enzymes are destroyed** at temperatures of 104 degrees F (40 degrees C)
e. Avoid coffee, tea, and chocolate, which have high caffeine. Green tea is a better alternative and has cancer fighting properties. Water—best to drink purified water, or filtered, to avoid known toxins and heavy metals in tap water. Distilled water is acidic, avoid it.

12. **Meat protein is difficult to digest** and requires a lot of digestive enzymes. Undigested meat remaining in the intestines becomes putrefied and leads to more toxic buildup.

13. Cancer cell walls have a tough protein covering. By refraining from or **eating less meat** it frees more enzymes to attack the protein walls of cancer cells and allows the body's killer cells to destroy the cancer cells.

14. **Some supplements build up the immune system** (IP6, Flor-ssence, Essiac, anti-oxidants, vitamins, minerals, EFAs etc.) to enable the bodies own killer cells to destroy cancer cells. **Other supplements** like vitamin E are known to cause apoptosis, or programmed cell death, the body's normal method of disposing of damaged, unwanted, or unneeded cells.
15. **Cancer is a disease of the mind, body, and spirit.** A proactive and positive spirit will help the cancer warrior be a survivor. Anger, un-forgiveness and bitterness put the body into a stressful and acidic environment. Learn to have a loving and forgiving spirit. Learn to relax and enjoy life.

16. **Cancer cells cannot thrive in an oxygenated environment.** Exercising daily, and deep breathing help to get more oxygen down to the cellular level. Oxygen therapy is another means employed to destroy cancer cells.

**Be Safe:**
1. No plastic containers in micro.
2. No water bottles in freezer.
3. No plastic wrap in microwave.
John Hopkins has recently sent this out in its newsletters. This information is being circulated at Walter Reed Army Medical Center as well. Dioxin chemicals cause cancer, especially breast cancer. Dioxins are highly poisonous to the cells of our bodies. Don't freeze your plastic bottles with water in them as this releases dioxins from the plastic. Recently, Dr Edward Fujimoto, Wellness Program Manager at Castle Hospital, was on a TV program to explain this health hazard. He talked about dioxins and how bad they are for us. He said that we should not be heating our food in the microwave using plastic containers. This especially applies to foods that contain fat. He said that the combination of fat, high heat, and plastics releases dioxin into the food and ultimately into the cells of the body. Instead, he recommends using glass, such as Corning Ware, Pyrex or ceramic containers for heating food. You get the same results, only without the dioxin. So such things as TV dinners, instant ramen and soups, etc., should be removed from the container and heated in something else. Paper isn't bad but you don't know what is in the paper. It's just safer to use tempered glass, Corning Ware, etc. He reminded us that a while ago some of the fast food restaurants moved away from the foam containers to paper. The dioxin problem is one of the reasons. Also, he pointed out that plastic wrap, such as Saran, is just as dangerous when placed over foods to be cooked in the microwave. As the food is nuked, the high heat causes poisonous toxins to actually melt out of the plastic wrap and drip into the food. Cover food with a paper towel instead.