CURRENT

Medical Diagnosis & Treatment

1992

a **LANGE** medical book

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Preface

Current Medical Diagnosis & Treatment 1992 is the 31st annual volume of a general medical text designed as a single-source reference for practitioners in both hospital and ambulatory settings. CMDT covers all internal medicine fields plus important topics outside internal medicine of concern to the primary care physician and to all specialists who provide generalist care. It emphasizes the practical features of diagnosis and patient management. Appropriate biochemical and pathophysiologic background information is provided as necessary to facilitate understanding of concepts.

OUTSTANDING FEATURES

- Reissued annually in January to incorporate current advances.
- Coverage of all aspects of internal medicine plus gynecology/obstetrics, dermatology, ophthalmology, otolaryngology, psychiatry, neurology, and other topics relevant to generalist care.
- Concise, readable format, affording efficient use in various practice settings.
- More than 1000 diseases and disorders.
- Only book of its kind to include an annual update on AIDS.
- Brevity, conciseness, and easy accessibility of key information.
- Quick reference index to common presenting problems on inside front cover.
- Emphasis on prevention and cost-consciousness, reflecting the realities of modern medical practice.
- Handy access to drug dosages.
- Inexpensively priced.

INTENDED AUDIENCE

House officers and medical students will find the concise, up-to-date descriptions of diagnostic and therapeutic procedures, with citations to the current literature, of daily usefulness in the immediate management of patients.

Internists, family physicians, and other specialists who provide generalist care will appreciate CMDT as a useful ready reference and refresher text.

Physicians in other specialities, surgeons, and dentists will find the book useful as a basic internal medicine reference.

Nurses and other health practitioners will welcome the concise format and broad scope of the book as a means of enhancing their understanding of diagnostic principles and therapeutic procedures.

ORGANIZATION

CMDT is developed and organized chiefly by organ system. Chapter 1 presents general information on patient care, including health maintenance and disease prevention, test selection and interpretation, and management of pain and other common symptoms. Chapter 2 addresses special problems of the older patient. Chapter 3 discusses medical management of cancer. Chapters 4–21 describe diseases and disorders and their treatment. Chapter 22 sets forth the basic concepts of nutrition in modern medical practice. Chapters 23–31 cover infectious diseases and antimicrobial therapy. Chapters 32–34 cover special topics: physical agents, poisoning, and medical genetics. The Appendix provides data on commonly used laboratory tests and diagnostic imaging techniques.

NEW TO THIS EDITION

- Drug information and bibliographies updated through May, 1991.
- An up-to-date, expanded chapter on AIDS and information on AIDS in other relevant chapters.
- An update on antibiotics.

- A new chapter on Skin.
- A substantially revised chapter on Cancer.
- A largely rewritten chapter on Endocrinology.
- Major revisions in the chapters on Fluid and Electrolytes, Genitourinary Disorders, and Viral & Rickettsial Diseases.

ACKNOWLEDGEMENTS

We wish to thank our associate authors for participating once again in the annual updating of this important book. Many students and physicians have contributed useful suggestions to this and previous editions, and we are grateful. We continue to welcome comments and recommendations for future editions.

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San Francisco, California
October, 1991

Table of Contents

General Approach to the Patient; Health Maintenance & Disease Prevention; Principles of Diagnostic Test Selection & Use; & Common Symptoms

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Steven A. Schroeder, MD, & Stephen J. McPhee, MD

GENERAL APPROACH TO THE PATIENT

This book is a reservoir—replenished annually—of instructions and guidelines for medical practitioners. The successful practitioner, however, is more than a receptacle for facts that make up the body of knowledge called medicine. Success in diagnosis and treatment can only be achieved by considering all of the complex personal, familial, and economic circumstances of our patients and their families and by establishing and maintaining a supportive and open relationship with every patient.

The approach to diagnosis begins with the history and pertinent physical examination. If diagnostic procedures are indicated, they must be based on principles of diagnostic test selection, which in turn depend upon principles of test characteristics (sensitivity and specificity), disease incidence and prevalence, the potential risk to the patient, and the cost:benefit profile of the test determined by reference to the indications for it. Successful treatment—particularly management of patients with chronic illnesses—must be tailored to the circumstances of the individual patient and reinforced by a well-established doctor-patient relationship. For many illnesses, treatment depends on fundamental behavioral changes—including alterations in diet, exercise, smoking, and drinking—that may be difficult even for motivated patients. Compliance with prescribed drug regimens is a problem in every practice, with up to 50% of patients failing to achieve full compliance and a third never taking their medicines at all. Patient compliance is improved when strong and trusting doctor-patient relationships have been established. Physicians can improve patient compliance by inquiring specifically about the behavior in question and by reinforcement through key family members. When confronted directly, many patients will admit to noncompliance with medication regimens or with exhortations about cigarette smoking cessation or safe sex techniques. Other ways of detecting noncompliance include pill counts, comparing dates on prescription labels with the number of pills remaining, monitoring serum levels of drugs such as digoxin, or assessing predictable drug side effects such as hypokalemia from thiazide diuretics.

Fundamental ethical principles must also undergird a successful approach to diagnosis and treatment: honesty, beneficence, justice, avoidance of conflict of interest, and the pledge to do no harm. Increasingly, Western medicine has involved patients in important decisions about medical care, including how far to proceed with treatment of patients who have terminal illnesses.

Finally, the physician's role does not end with diagnosis and the prescribing of a treatment regimen. The importance of the physician in helping patients and their families bear the burden of serious illness and death cannot be overemphasized. "To cure sometimes, to relieve often, and to comfort always" is a French saying as apt today as it was 5 centuries ago—as is Francis Peabody's admonition: "The secret of the care of the patient is in caring for the patient."

Carr A: Compliance with medical advice. (Editorial.) Br J Gen Pract 1990;40:358.

Green LW: How physicians can improve patients' participation and maintenance in self-care. West J Med 1987;147:346.

Jonsen AR, Siegler M, Winslade WJ: *Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine*. Macmillan, 1982.

HEALTH MAINTENANCE & DISEASE PREVENTION

Preventing disease is more important than treating it. Preventive medicine is categorized as primary, secondary, or tertiary. Primary prevention aims to reduce or remove disease risk factors (eg, giving up or not starting smoking to reduce the incidence of lung carcinoma). Secondary prevention techniques are designed to promote early detection of disease or precursor states (eg, routine cervical Papanicolaou screening to detect invasive carcinoma or carcinoma in situ of the cervix). Tertiary prevention measures are aimed at limiting the impact of established disease (eg, partial mastectomy and radiation therapy to remove and control localized breast cancer). Primary prevention is by far the most effective and economical of all methods of disease control, but most physicians are deficient in their counseling practices concerning preventable conditions.

Table 1–1 lists the 5 leading causes of death in the USA, along with important risk factors linked to these causes. Physicians can have a major role in reducing almost all of these risk factors, thereby improving their patients' health.

Table 1–1. The 5 leading causes of death in the USA and associated modifiable risk factors.[1]

Cause of Death	Risk Factors
1. Cardiovascular disease	Tobacco use
	Elevated serum cholesterol
	High blood pressure
	Obesity
	Diabetes mellitus
	Sedentary life-style
2. Cancer	Tobacco use
	Improper diet
	Alcohol
	Occupational and environmental exposures
3. Cerebrovascular disease	High blood pressure
	Tobacco use
	Elevated serum cholesterol
4. Accidental injuries	Safety belt noncompliance
	Cycle helmet noncompliance
	Alcohol and substance abuse
	Reckless driving
	Occupational hazards
	Guns in the home
	Stress and fatigue
5. Chronic lung disease	Tobacco use
	Occupational and environmental exposures

[1] Adapted from National Center for Health Statistics/U.S. Department of Health and Human Services: *Health United States: 1986*. DHHS Pub. No. (PHS) 87–1232, 1987.

Health maintenance and disease prevention usually begin with the office or clinic encounter. Table 1–2 lists 1989 recommendations for the periodic health examination as developed by the US Preventive Services Task Force. These recommendations include a variety of maneuvers: inquiring about and counseling for various risk factors, performing parts of the physical examination, and selecting laboratory and radiologic tests and procedures. The recommendations of the Task Force are stratified by age group, reflecting the different epidemiologic risks appropriate for each group. Based on a critical review of available evidence, the recommendations emphasize counseling activities and are more conservative about routine use of such procedures as periodic sigmoidoscopy than were earlier guidelines from groups such as the American Cancer Society. Cost considerations may limit the application of some of these (eg, mammography), depending on the setting and the circumstances.

Burack RC: Barriers to clinical preventive medicine. Primary Care 1989;16:245. (Reviews physician, patient, and health care delivery system factors.)

Department of Health and Human Services, Public Health Service. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Department of Health and Human Services, 1990. (Comprehensive review of national health problems and objectives.)

Hayward RSA et al: Preventive care guidelines: 1991. Ann Intern Med 1991;114:758. (Compares and contrasts preventive guidelines from several sources.)

Lewis CE et al: The counseling practices of internists. Ann Intern Med 1991;114:54. (Counseling efforts of internists fell far short of desired levels.) *Report of the US Preventive Services Task Force: Guide to Clinical Preventive Services.* Williams & Wilkins, 1989. (Summary of extensive Task Force deliberations on the evidence for efficacy of prevention strategies.)

INFECTIOUS DISEASES

The impressive 20th century accomplishments in immunization and antibiotic therapy notwithstanding, much of the decline in the incidence and fatality rates of infectious diseases is attributable to improved social conditions and public health measures—especially improved sanitation, better nutrition, and greater prosperity.

Immunization remains the best means of preventing many infectious diseases, including tetanus, diphtheria, poliomyelitis, measles, mumps, rubella, hepatitis B, yellow fever, influenza, and pneumococcal pneumonia. Recommended immunization schedules for children and adults are set forth in Table 23–4. Persons traveling to countries where infections are endemic should take special precautions, as described in Chapter 23.

Table 1–2. Prevention surveillance in office practice. (Modified from: 1989 Report of the US Preventive Services Task Force: Guide to Clinical Preventive Services.)

I. Patients Ages 13–18

SCHEDULE: One visit is required for immunizations. The scheduling of additional visits and the frequency of the individual preventive services are left to clinical discretion.

LEADING CAUSES OF DEATH:
- Motor vehicle crashes
- Homicide
- Suicide
- Injuries (other than motor vehicle)
- Heart disease

REMAIN ALERT FOR:
- Depressive symptoms
- Suicide risk factors: Depression, alcohol or other drug abuse, serious medical illnesses, or recent bereavement.
- Abnormal response to bereavement
- Tooth decay, malalignment, gingivitis
- Signs of physical abuse and neglect

A. SCREENING

1. History
   - Dietary intake
   - Physical activity
   - Tobacco/alcohol/drug use
   - Sexual practices
2. Physical exam
   - Height and weight
   - Blood pressure

   HIGH-RISK GROUPS
   - Complete skin exam: Persons with increased recreational or occupational exposure to sunlight, family or personal history of skin cancer, or clinical evidence of precursor lesions (eg, dysplastic nevi, certain congenital nevi).
   - Clinical testicular exam: Males with a history of cryptorchidism, orchiopexy, or testicular atrophy.
3. Laboratory and diagnostic procedures

   HIGH-RISK GROUPS
   - Rubella antibodies: Females of childbearing age lacking evidence of immunity
   - VDRL: Persons who engage in sex with multiple partners, prostitutes, or contacts of persons with active syphilis.
   - Chlamydial testing: Persons who attend sexually transmitted disease, adolescent medicine, and family planning clinics or have other risk factors for chlamydial infection (eg, multiple sex partners or a sexual partner with multiple sexual contacts).
   - Gonorrhea culture: Persons with multiple sexual partners or a sexual partner with multiple contacts, sexual contact of persons with culture-proved gonorrhea, or persons with a history of repeated episodes of gonorrhea.
   - Counseling and testing for HIV: Persons seeking treatment for sexually transmitted diseases; intravenous drug users; homosexual and bisexual men; past or present intravenous drug users; persons with a history of prostitution or multiple sexual partners; women hose past or present sexual partners were HIV-infected, bisexual, or intravenous drug users; persons with long-term residence or birth in an area with high prevalence of HIV infections; or persons with a history of transfusion between 1978 and 1985.
   - Tuberculin skin test (PPD): Household contacts of persons with tuberculosis or others at risk for close exposure to infection; recent immigrants or refugees from countries in which tuberculosis is common (eg, Asia, Africa, Central and South America, Pacific Islands); migrant workers; residents of correctional institutions or homeless shelters; or persons with certain underlying medical disorders (eg, HIV infection).
   - Hearing: Persons exposed regularly to excessive noise in recreational or other settings.

B. COUNSELING

1. Diet and exercise
   - Fat (especially saturated fat), cholesterol, sodium, iron (for females), calcium (for females)
   - Caloric balance
   - Selection of exercise program
2. Substance use
   - Tobacco: Cessation/primary prevention
   - Alcohol and other drugs: Driving/other dangerous activities while under the influence
   - Treatment for abuse

   HIGH-RISK GROUPS
   - Sharing/using unsterilized needles and syringes: intravenous drug users
3. Sexual practices
   - Sexual development and behavior (counseling often best performed early in adolescence and with the involvement of the parents)
   - Sexually transmitted diseases: partner selection, condoms
   - Unintended pregnancy and contraceptive options
4. Injury prevention
   - Safety belts and helmets
   - Violent behavior and firearms (for males)
   - Smoke detector and smoking near bedding or upholstery
5. Dental health: Regular tooth brushing, flossing, dental visits
6. Other primary preventive measures

   HIGH-RISK GROUPS
   - Discussion of hemoglobin testing: Persons of Caribbean, Latin American, Asian, Mediterranean, or African descent. Skin protection from ultraviolet light: Persons with increased exposure to sunlight.

C. IMMUNIZATION AND CHEMOPROPHYLAXIS

1. Tetanus-diphtheria (Td) booster once between ages 14 and 16

   HIGH-RISK GROUPS
   - Fluoride supplements: Persons living in areas with inadequate water fluoridation (< 0.7 ppm).

II. Patients Ages 19–39

SCHEDULE: Periodic visit every 1–3 years.
LEADING CAUSES OF DEATH: Same as for ages 13-18
REMAIN ALERT FOR: Same as for ages 13–18, and:
- Malignant skin lesions

A. SCREENING

1. History and physical exam: Same as for ages 13–18.

   HIGH-RISK GROUPS
   - Complete oral cavity exam: Persons with exposure to tobacco or excessive amounts of alcohol, or those with suspicious symptoms or lesions detected through self-examination.
   - Palpation for thyroid nodules: Persons with a history of upper body irradiation.
   - Clinical breast exam: Women aged 35 and older with a family history of premenopausally diagnosed breast cancer in a first-degree relative.

(continued)

Table 1-2 (cont'd). Prevention surveillance in office practice. (Modified from: 1989 Report of the US Preventive Services Task Force: Guide to Clinical Preventive Services.)

II. Patients Ages 19–39 (cont'd)

Clinical testicular exam: Same as for ages 13–18.
Complete skin exam: Same as for ages 13–18
2. Laboratory and diagnostic procedures
Nonfasting total blood cholesterol
Papanicolaou smear: Females, every 1–3 years
HIGH-RISK GROUPS
Fasting plasma glucose: The markedly obese, persons with a family history of diabetes, or women with a history of gestational diabetes.
Rubella antibodies: Women lacking evidence of immunity.
VDRL: Same as for ages 13–18.
Urinalysis for bacteriuria: Persons with diabetes.
Chlamydial testing: Same as for ages 13–18.
Gonorrhea culture: Same as for ages 13–18.
Counseling and testing for HIV: Same as for ages 13–18
Hearing: Same as for ages 13–18.
Tuberculin skin test (PPD): Same as for ages 13–18.
Electrocardiogram: Persons who would endanger public safety were they to experience sudden cardiac events (eg, commercial airline pilots).
Mammogram: Women aged 35 and older with a family history of premenopausally diagnosed breast cancer in a first-degree relative.
Colonoscopy: Persons with a family history of familial polyposis coli or cancer family syndrome.

B. COUNSELING
1. Diet and exercise: Same as for ages 13–18
2. Substance use:
Tobacco: cessation/primary prevention
Alcohol and other drugs:
Limiting alcohol consumption
Driving/other dangerous activities while under the influence
Treatment for abuse
HIGH-RISK GROUPS
3. Sexual practices
Sexually transmitted diseases: partner selection, condoms, anal intercourse
Unintended pregnancy and contraceptive options
4. Injury prevention: Same as for ages 13–18, and:
HIGH-RISK GROUPS
Back-conditioning exercises: Persons at increased risk for low back injury because of past history, body configuration, or type of activities.
5. Dental health: Regular tooth brushing, flossing, dental visits.
6. Other primary preventive measures
HIGH-RISK GROUPS: Same as for ages 13–18.

C. IMMUNIZATIONS
1. Tetanus-diphtherial (Td) booster (every 10 years)
HIGH-RISK GROUPS
Hepatitis B vaccine: Homosexually active men, intravenous drug users, recipients of some blood products, or persons in health-related jobs with frequent exposure to blood or blood products.
Pneumococcal vaccine: Persons with medical conditions that increase the risk of pneumococcal infection (eg, chronic cardiac or pulmonary disease, sickle cell disease, nephrotic syndrome, Hodgkin's disease, asplenia, diabetes mellitus, alcoholism, cirrhosis, multiple myeloma, renal disease, or conditions associated with immunosuppression).
Influenza vaccine (annually): Residents of chronic care facilities or persons suffering from chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression, or renal dysfunction.
Measles-mumps-rubella vaccine: Persons born after 1956 who lack evidence of immunity to measles (receipt of live vaccine on or after first birthday, laboratory evidence of immunity, or a history of physician-diagnosed measles).

III. Patients Ages 40–64

SCHEDULE: Periodic visit every 1–3 years.
LEADING CAUSES OF DEATH:
Heart disease
Lung cancer
Cerebrovascular disease
Breast cancer
Colorectal cancer
Obstructive lung disease
REMAIN ALERT FOR: Same as for ages 13–18, and:
Malignant skin lesions
Peripheral arterial disease: Persons over age 50, smokers, or persons with diabetes mellitus.
Tooth decay, gingivitis, loose teeth
A. SCREENING
1. History: Same as for ages 13–18.
2. Physical exam
Height and weight
Blood pressure
Clinical breast exam (annually for women)
HIGH-RISK GROUPS
Complete skin exam: Same as for ages 13–18.
Complete oral cavity exam: Same as for ages 19–39.
Palpation for thyroid nodules: Persons with a history of upper body irradiation.
3. Laboratory/diagnostic procedures
Nonfasting total blood cholesterol
Papanicolaou smear (every 1–3 years for women)
Mammogram (every 1–2 years for women beginning at age 50)
HIGH-RISK GROUPS
Fasting plasma glucose: Same as for ages 19–39.
VDRL: Same as for ages 13–18.
Urinalysis for bacteriuria: Same as for ages 19–39.
Chlamydial testing: Same as for ages 13–18
Gonorrhea culture: same as for pages 13–18
Counseling and testing for HIV: Same as for ages 13–18.
Tuberculin skin test (PPD): Same as for ages 13–18.
Hearing: Same as for ages 13–18.
Electrocardiogram: Men with 2 or more cardiac risk factors (high blood cholesterol, hypertension, cigarette smoking, diabetes mellitus, family history of coronary artery disease); men who would endanger public safety were they to experience sudden cardiac events (eg, commercial airline pilots); or sedentary or high-risk males planning to begin a vigorous exercise program.
Fecal occult blood/sigmoidoscopy: Persons aged 50 and older who have first-degree relatives with colorectal cancer; a personal history of endometrial, ovarian, or breast cancer; or a previous diagnosis of inflammatory bowel disease, adenomatous polyps, or colorectal cancer.
Fecal occult blood/colonoscopy: Persons with a family history of familial polyposis coli or cancer family syndrome.

Table 1-2 (cont'd). Prevention surveillance in office practice. (Modified from: 1989 Report of the US Preventive Services Task Force: Guide to Clinical Preventive Services.)

III. Patients Ages 40–64 (cont'd)

Bone mineral content: Perimenopausal women at increased risk for osteoporosis (eg, Caucasian race, bilateral oophorectomy before menopause, slender build) and for whom estrogen replacement therapy would otherwise not be recommended.

B. COUNSELING

1. Diet and exercise
   - Fat (especially saturated fat), cholesterol, complex carbohydrates, fiber, sodium, calcium (for women)
   - Caloric balance
   - Selection of exercise program
2. Substance use: Same as for ages 19–39.
3. Sexual practices: Same as for ages 19–39.
4. Injury prevention
   - Safety belts
   - Safety helmets
   - Smoke detector
   - Smoking near bedding or upholstery

   HIGH-RISK GROUPS: Same as for ages 19–39.
5. Dental health: Regular tooth brushing, flossing, dental visits
6. Other primary preventive measures

   HIGH-RISK GROUPS
   - Skin protection from ultraviolet light: Persons with increased exposure to sunlight.
   - Discussion of aspirin therapy: Men who have risk factors for myocardial infarction (eg, high blood cholesterol, smoking, diabetes mellitus, family history of early-onset coronary artery disease) and who lack a history of gastrointestinal or other bleeding problems, and other risk factors for bleeding or cerebral hemorrhage.
   - Discussion of estrogen replacement therapy: Perimenopausal women at increased risk for osteoporosis (eg, Caucasian, low bone mineral content, bilateral oophorectomy before menopause or early menopause, slender build) and who are without known contraindications (eg, history of undiagnosed vaginal bleeding, active liver disease, thromboembolic disorders, hormone-dependent cancer).

C. IMMUNIZATIONS

1. Tetanus-diptheria (Td) booster (every 10 years)

   HIGH-RISK GROUPS
   - Hepatitis B vaccine: Same as for ages 13–18.
   - Pneumococcal vaccine: Same as for ages 13–18.
   - Influenza vaccine: Same as for ages 13–18.

IV. Patients Ages 65 and Over

SCHEDULE: Periodic visit every year.

LEADING CAUSES OF DEATH:

- Heart disease
- Cerebrovascular disease
- Obstructive lung disease
- Pneumonia/influenza
- Lung cancer
- Colorectal cancer

REMAIN ALERT FOR:

- Depressive symptoms
- Suicide risk factors: Recent divorce, separation, unemployment, depression, alcohol or other drug abuse, serious medical illnesses, living alone, or recent bereavement.
- Abnormal response to bereavement
- Changes in cognitive function
- Medications that increase risk of falls
- Signs of physical abuse or neglect
- Malignant skin lesions
- Peripheral arterial disease
- Tooth decay, gingivitis, loose teeth

A. SCREENING

1. History
   - Prior symptoms of transient ischemic attack
   - Dietary intake
   - Physical activity
   - Tobacco/alcohol/drug use
   - Functional status at home
2. Physical exam
   - Height and weight
   - Blood pressure
   - Visual acuity
   - Hearing and hearing aids
   - Clinical breast exam (annually for women until age 75, unless pathology detected)

   HIGH-RISK GROUPS
   - Complete skin exam: Persons with a family or personal history of skin cancer or clinical evidence of precursor lesions (eg, dysplastic nevi, certain congenital nevi), or those with increased occupational or recreational exposure to sunlight.
   - Complete oral cavity exam: Persons with exposure to tobacco or excessive amounts of alcohol, or those with suspicious symptoms or lesions detected through self-examination.
   - Palpation for thyroid nodules: Persons with a history of upper-body irradiation.
3. Laboratory/diagnostic procedures
   - Nonfasting total blood cholesterol
   - Mammogram (every 1–2 years for women until age 75, unless pathology detected)
   - Thyroid function tests (for women)

   HIGH-RISK GROUPS
   - Fasting plasma glucose: The markedly obese, persons with a family history of diabetes, or women with a history of gestational diabetes.
   - Tuberculin skin test (PPD): Same as for ages 13–18.
   - Electrocardiogram: Same as for ages 40–64.
   - Papanicolaou smear (every 1–3 years): Women who have not had previous documented screening in which smears have been consistently negative.
   - Fecal occult blood/sigmoidoscopy: Same as for ages 40–64.
   - Fecal occult blood/colonoscopy: Same as for ages 40–64.

B. COUNSELING

1. Diet and exercise: Same as for ages 40–64.
2. Substance use: Same as for ages 19–39.
3. Injury prevention: Same as for ages 40–64, and:
   - Hot water heater temperature
4. Dental health: Regular dental visits, tooth brushing, flossing
5. Other primary preventive measures: Glaucoma testing by eye specialist

   HIGH-RISK GROUPS
   - Discussion of estrogen replacement therapy: Same as for ages 40–64.
   - Discussion of aspirin therapy: Same as for ages 40–64.
   - Skin protection from ultraviolet light: Persons with increased exposure to sunlight.

C. IMMUNIZATIONS

1. Tetanus-diphtheria (Td) booster (every 10 years)
2. Influenza vaccine (annually)

   HIGH-RISK GROUPS
   - Hepatitis B vaccine: Same as for ages 19–39.