



preventive medicine handbook

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State University of New York

Upstate Medical University
College of Medicine

***SUNY Upstate Medical University
College of Medicine
Preventive Medicine Handbook***

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Introduction

Prevention is key to improving the health status of patients. The curriculum of the College of Medicine at Upstate Medical University emphasizes the importance of teaching prevention in an integrated and longitudinal format. Preventive components are essential to clinical encounters and performance of these can reduce the risk and occurrence of illness and unnecessary treatment.

Prevention is accomplished through a series of clinical skills including screening and behavior modification. Prevention is also important on a population-basis: population factors (also known as health determinants) are the chief predictors and influences on the health status of individuals. These determinants include income, housing, education, and health behaviors.

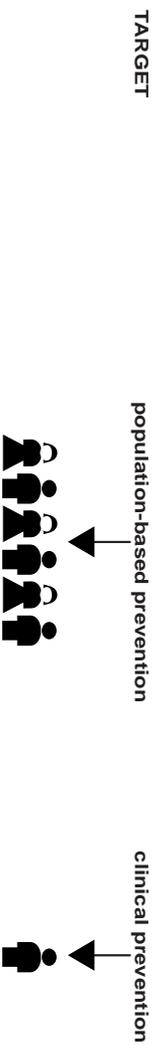
As shown in the accompanying figure (page 6), the preventive curriculum is designed to develop capabilities in students to apply clinical and population-based prevention strategies so that (1) individuals in encounters with the health care system will receive maximal benefits in promoting health and preventing illness and (2) physicians can fully participate in improving the health of groups and individuals in the communities where they practice.

The Preventive Medicine Curriculum at Upstate Medical University emphasizes the building of skills through student interaction on case-based learning and critical appraisal. With funding from the Josiah Macy Jr. Foundation and the Health Resources and Services Administration (HRSA), a series of innovative clinical and population-based prevention cases have been developed based on actual Onondaga County (Syracuse) data and health issues. These cases are being used at other medical schools and residency training programs throughout the nation.

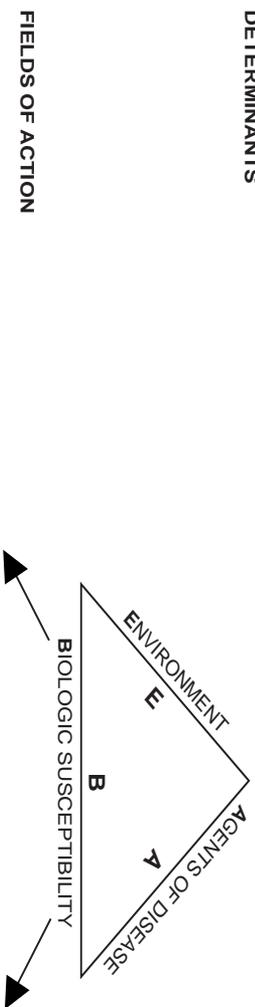
Critical appraisal of evidence is important to the application of preventive interventions as is cost-effectiveness analysis of both patient and population-based activities. Perspective from community site visits is key to understanding the clinical presentation of patients as influenced by their environment.

The purpose of this booklet is to describe the integrated Preventive Medicine Curriculum and to provide resources, websites, and preventive tools related to screening, counseling, and immunizations. Also included are “age-specific charts” to be used by students during each patient contact in order to stimulate awareness and self-directed learning in prevention. Finally, this book lists Core Faculty – the people who make the preventive curriculum possible.

Public Health Approaches to Improving Health



DETERMINANTS



FIELDS OF ACTION

- Modify Community Determinants**
- | | | | | | | | | | | | |
|----------|--|----------|--|----------|--|----------|---|----------|---|----------|---|
| E | water supply protection
food protection
air quality
sewage disposal
hazardous waste
lead-free housing
injury protection
needle exchange | B | immunization registry
healthy heart programs
HIV prevention
partner notification (STD)
newborn screening
mammography
cervical cancer screening
TB control | A | smoke-free environment
nutritional programs
radiation protection
biological terrorism | A | STD treatment
tuberculosis treatment
smoking cessation
allergens | B | blood pressure checks
immunizations
mammography
pap smears
safe sex counseling
diet counseling | E | lead screening
seat-belt counseling
firearm counseling
occupational health
sun exposure |
|----------|--|----------|--|----------|--|----------|---|----------|---|----------|---|
- Screening, counseling, and treatment in clinical settings**

Source: Public Health Administration: Principles for Population Based Management. LF Novick and G Mays (eds) Aspen Publications, Gaithersburg, MD, 2000).

Objectives

The Preventive Medicine curriculum has integrated educational objectives from the American Association of Medical Colleges (AAMC)* and the Association of Teachers of Preventive Medicine (ATPM)** to guide the preventive medicine curriculum.

Clinical Prevention (Delivery of Personal Disease Prevention/Health Promotion Services) - To develop skills including:

- Disease prevention and health promotion interventions;
- Health and risk assessment;
- Physician-patient interaction;
- Ability to function effectively as part of a health care team and not the sole deliverer of healthcare; and
- Respect for cultural/socioeconomic diversity.

Quantitative Methods - To develop skills including:

- Basic concepts and tools of epidemiology;
- Ability to evaluate outcomes of disease prevention and health promotion interventions;
- Ability to define and describe a population (demography, cultural and socio-economic makeup, health status) and to understand how to gather health information about this group;
- General applications (sampling, research design, statistics, data collection);
- Basic concepts and tools of statistical application; and
- Ability to identify, evaluate and understand national and regional sources of data.

Health Services Organization and Delivery - To develop skills including:

- Ability to critically read clinical studies and apply findings to health care decisions involving real patients and panels of patients;
- Health care system structure as it affects physician-patient contacts;
- Health care financing; and
- Determinants of health care planning.

Community Dimensions of Medical Practice - To develop skills including:

- Ability to incorporate principles of prevention and behavior change appropriate for specific populations of patients within a community;
- Public health/primary care issues (Public policy, including Year 2010 Objectives);

- Environmental and occupational health;
- Understanding the implications of local systems of health care (organization, financing, and management) on delivering patient care to specific patients;
- Community organization; and
- International health.

* "Medical Schools Objectives Project Report II, Contemporary Issues in Medicine: Medical Informatics and Population Health," American Association of Medical Colleges (AAMC), 1998.

** "An Inventory of Knowledge and Skills Relating to Disease Prevention and Health Promotion," Association of Teachers of Preventive Medicine (ATPM), 1994.

Preventive Medicine Curriculum

The Preventive Medicine Curriculum at SUNY-Upstate College of Medicine emphasizes individual patient encounters, as well as a population-based approach (environmental and behavioral health determinants). For all students in the College of Medicine, this curriculum includes a foundation course, Epidemiology, which is a component of POM, taught at the Syracuse Campus in year one. In addition, the Preventive Medicine Curriculum is integrated into all major clinical clerkships in years three and four.

At the start of year three, approximately 25 percent of Upstate's medical students move to the Binghamton Clinical Campus to pursue their clinical education. The other students remain in Syracuse and complete their clinical education at University Hospital and its affiliates.

At the Syracuse campus, the curricular element in years three (3) and four (4) includes four distinct items: (1) core curriculum sessions within each clerkship which include didactic presentations and small-group interactive sessions on clinical prevention in individual patients; (2) small-group interactive sessions using population-based teaching cases; (3) emphasis on prevention in patient care experiences; and (4) community site visits which occur during the Pediatric Clerkship. The Binghamton Clinical campus includes similar elements, as well as modules that include five patient and population-based preventive medicine components. Both campuses offer electives in public health.

The charts on pages 12-15 outline the Preventive Medicine Curriculum for the Syracuse Campus and for the Binghamton Clinical Campus.

Community Site Visits

Syracuse Campus/Binghamton Clinical Campus

Community site visits provide students with an opportunity to experience patient environments in relation to health problems. At the Syracuse Campus, site visits take place during the Pediatric Clerkship. Students are divided into small groups, each of which selects one site to visit. Each group prepares a report that analyzes the operative health determinants and sets forth recommendations based on observations and readings.

At the Binghamton Clinical Campus, site visits are available through various clerkships: Primary care; Internal Medicine, where students visit nursing homes and participate in a Hospice Day which includes home visits to patients in palliative care; and Geriatrics, which sends students to a community site that cares for the elderly, including senior citizen centers, Office for the Aging, Adult Protective Services and a home care agency.

Lead Toxicity: Students accompany a public health nurse or an environmental sanitarian on visits to homes where a child has been found to have a blood lead level greater than 10 micrograms/deciliter.

Infant Mortality: Students accompany a public health nurse on home visits to pregnant or post-partum adolescents. They observe infant health exams and maternal counseling re: nutrition, parenting, and birth control methods.

Jail Health: Students visit a large county jail and assess the adequacy of health services. Health problems of increased prevalence in this setting are examined. Reports include evaluations and recommendations that address issues of access and provision of specialty care.

Electives

Syracuse Campus

Public Health. Students work on a specific public health objective. Examples include infant mortality, adolescent health problems, lead toxicity, tuberculosis; bioterrorism and sexually-transmitted diseases. Students work as part of a team in the assessment of problems and actual program implementation. They also have the opportunity to participate in other Onondaga County Health Department programs. Contact Lloyd Novick, MD, MPH at 315-435-3155, or Sally M. Sutphen, MSc, MPH at 315-464-5805.

Occupational Medicine. Students participate in the clinical evaluation and follow-up of patients with suspected workplace related illnesses. They also interact with an interdisciplinary team to develop and implement treatment plans. Additional experiences may include visiting worksites, attending industrial clinics, and spending time with a plant physician in a local industry. Students develop skills to accurately diagnose occupational illness and to recognize the physician's role in the prevention of such illness. Contact Michael B. Lax, MD, MPH, at 315-432-8899.

Other Preventive Medicine Electives. To arrange a particular elective in preventive medicine (students can suggest topics) contact Lloyd Novick, MD, MPH, at 315-435-3155 or Sally M. Sutphen, MSc, MPH at 464-5805.

Binghamton Clinical Campus

Public Health/Broome County Health Department. Students work on specific public health objectives such as cardiovascular disease, cerebrovascular disease, child sexual abuse, lead toxicity, sexually-transmitted diseases, and water purifications. They work with public health or social services agencies on various problems. Contact Alan Wabrek, MD, DrPH, Director, Preventive Medicine Program, Binghamton, at 607-772-3529.

PREVENTIVE MEDICINE CURRICULUM -

Year	Module	Module/Clerkship Coordinator	Curricular Elements
1	Epidemiology/ Preventive Medicine	Lloyd F. Novick, MD, MPH (director), Sally M. Sutphen, MSc, MPH (coordi- nator)	Part of Practice of Medicine Large group lectures; Research Design
3	Family Medicine Clerkship	Ann Barash, MD	Core curriculum Population case Patient care
3	Internal Medicine Clerkship	Taylor Loftus, MD Sara Jo Grethlein, MD	Core curriculum Population cases Patient care
3	Pediatric Clerkship	Steve Blatt, MD	Core curriculum Community site visits Patient care
3	Obstetrics/ Gynecology Clerkship	Raja Abdul-Karim, MD Linda Newell, PhD	Core curriculum Population case Patient care
3	Psychiatry Clerkship	Chaitanya Haldipur, MD Mohsin Ali, MD	Core curriculum Population case Patient care
3	Surgery Clerkship	Frank Szmalc, MD CJ. Ryan, MD	Core curriculum Population case Patient care
3-4	Neurology/ Neurosurgery Clerkship	Michael Vertrino, MD. Assistant Professor of Neu- rology, Clerkship Director	Core curriculum Population case Patient care

SYRACUSE CAMPUS

Topics

Fundamentals of Epidemiology; small group exercises; biostatistics; critical appraisal of literature; clinical screening; population-based prevention

Smoking cessation; domestic violence; substance abuse; Occupational medicine (asthma, occupational exposure); Health maintenance reviewed in most patient interactions

Adult immunizations; screening, counseling
Cardiovascular prevention: risk assessment and screening; smoking cessation: history, counseling, pharmacotherapy
Health maintenance reviewed in most patient interactions

Childhood immunizations; screening; counseling; sexual abuse
Lead toxicity; perinatal nutrition; infant mortality; jail health
Immunizations and prevention emphasized at well-child visits

Prevention of low birth-weight
STDs in Onondaga County; partner notification; HIV testing; community determinants of disease
Health maintenance emphasized in Ob and Gyn patient interactions

Suicide prevention; domestic violence; child abuse; relapse prevention
Adolescent suicide; individual and community-based prevention
Risk assessment for suicide

Breast cancer risk factors and need for early diagnosis and treatment
Outcome measures; population statistics
Universal precautions

Stroke & headache prevention epidemiology and recognition of child abuse
Bicycle helmet effectiveness in reducing head injuries
Health maintenance reviewed in patient interactions as appropriate; relationship of alcohol abuse to closed head injury

PREVENTIVE MEDICINE CURRICULUM -

Year	Module*	Module Coordinator	Curricular Elements
3/4	Clinical Prevention: Delivery of personal disease prevention and health promotion	Christopher Ryan, MD Robert Maykut, MD	Core curriculum; Population case; and Patient care/Clinical Clerkship
3/4	Health Services Delivery, United Medical Associates Management	Richard Wu, MD	Core curriculum; Population case; and Patient care/Clinical Clerkship
3/4	Community Dimensions of Medical Practice	Barbara Chaffee, MD, MPH	Core curriculum; Population case; and Patient care/Clinical Clerkship
3/4	Quantitative Methods	Neil Hall, MD, MBA	Core curriculum; Population case; and Patient care/Clinical Clerkship
3/4	Practice of Medicine: 18 times per year using standardized patients	Alan Wabrek, MD, MPH, DrPH	Patient-Centered Communication Skills and Bioethics

* The modules, except for Practice of Medicine, are taught by three or more of the following departments: Family Medicine, Geriatrics, Internal Medicine, Pediatrics, and Population-based Medicine

BINGHAMTON CLINICAL CAMPUS

(Alan Wabrek, MD, DrPH, Preventive Medicine Program Director)

Topics

Health and risk assessment; disease prevention and health promotion interventions; physician-patient interaction; respect for cultural/socioeconomic diversity; ability to function effectively as part of a health care team.

Determinants of health care planning; healthcare system structure as it affects physician-patient contacts; health care financing; clinical evaluation of clinical studies and outcomes with application of these findings to health care decisions.

Understanding local systems of health care and their delivery of patient care; public health/primary care issues; ability to incorporate principles of prevention and behavior change appropriate for specific populations of patients within a community.

Basic concepts and tools of Epidemiology and statistical application; general applications; ability to define and describe a population; ability to identify and evaluate national and regional sources of data.

The medical interview; challenging clinical encounters; physician-patient relationship; social/cultural issues.

Preventive Medicine Tools

*Tips On Counseling**

- 1) **Frame the teaching to match the patient's perspective.**
Elicit "important beliefs" by asking questions such as, "What gets in the way of your eating a low-fat diet?" Then focus teaching appropriately.
- 2) **Fully inform patients of the purposes and expected effects of interventions and when to expect these effects.**
"Informing patients that the beneficial effects of a low-cholesterol diet...may not become apparent for several months might increase the likelihood of long-term compliance."
- 3) **Suggest small changes rather than large ones.**
It's important to structure interventions "so that people are likely to experience success."
- 4) **Be specific.**
"Specific and informational instructions will generally lead to better compliance."
- 5) **It is sometimes easier to add new behaviors than to eliminate established behaviors.**
Suggest new physical activity rather than "a change in current dietary patterns."
- 6) **Link new behaviors to old behaviors.**
Suggest patients "use an exercise bike while watching the evening news."
- 7) **Use the power of the profession.**
Be sympathetic and supportive while providing firm, definite messages such as, "I want you to stop smoking."
- 8) **Get explicit commitments from the patient.**
Ask patients to describe the intended regimen and "how to integrate this new behavior into their daily schedule."
- 9) **Use a combination of strategies.**
"Integrate individual counseling, group classes, audiovisual aids, written materials, and community resources."
- 10) **Involve office staff.**
Patient education "is a responsibility that is shared among physicians, nurses, clinical nurse specialists, health educators, dieticians, etc."
- 11) **Refer.**
There are many major referral sources including "community agencies, national voluntary health organizations such as the American Heart Association, instructional references such as books and video tapes, and...other patients."
- 12) **Monitor progress through follow-up contact.**
Schedule a follow-up appointment or telephone call within the next few weeks to evaluate progress, reinforce successes, and identify and respond to problems.

* Adapted from the *Guide to Clinical Preventive Services, 2nd Edition, Report of the U.S. Preventive Services Task Force*. International Medical Publishers, 1996 pp. lxxvii - lxxx.

Motivating People to Change*

“...Motivation should not be thought of as a personality problem, or as a trait that a person carries through the [physician’s] doorway. Rather, motivation is a state of readiness or eagerness to change, which may fluctuate from one time or situation to another. This state is one that can be influenced.

Skillful [physicians] will best facilitate change if they understand the process of change and learn how to activate or investigate the unfolding of that process. . .

One helpful model of how change occurs has been developed by psychologists James Prochaska and Carlo DiClemente. These researchers have sought to understand how and why people change...”

A Decisional Balance Sheet

Continuing to drink as before

Benefits

- Helps me relax
- I like getting high

Costs

- Could lose my marriage
- Bad example for children
- Damaging my health
- Spending too much money
- Damaging my brain
- Might lose my job
- Wasting my time/life

Making a change in my drinking

Benefits

- Happier marriage
- More time for family
- Feel better
- Helps money problems

Costs

- What to do about my friends
- Won’t have a way to relax

Prochaska and DiClemente describe six stages of change: pre-contemplation, contemplation, determination, action, maintenance, and relapse. Precontemplation usually precedes contemplation. For some patients, permanent change follows maintenance, and no relapse occurs. For those who do relapse, the cycle begins again with contemplation. **

“Ambivalence is a state of mind in which a person has coexisting but conflicting feelings about something. . .The person experiences competing motivations because there are both benefits and costs associated with both sides of the conflict.

The ‘balance sheet’ can be used with motivational interviewing to penetrate this state of ambivalence, to clarify the competing motivational factors, and to encourage the person to consider the possibility of change.”

* *Motivational Interviewing: Preparing People to Change Addictive Behavior*, William R. Miller and Stephen Rollnick, The Guilford Press, New York, London, 1991, pp. 14, 15, 38-42 and 191

** “Self-Change and Therapy Change of Smoking Behavior: A Comparison of Processes of Change in Cessation and Maintenance,” CC DiClemente and JO Prochaska, *Addictive Behaviors*, 1982; 7:133-42.

*Principles of Screening**

A: Two Major Requirements a Screening Test Must Satisfy

- 1) The test must be able to detect the target condition earlier than without screening and with sufficient accuracy to avoid producing large numbers of false-positive and false-negative results (accuracy of screening test).
- 2) Screening for and treating persons with early disease should improve the likelihood of favorable health outcomes (e.g., reduced disease-specific morbidity or mortality) compared to treating patients when they present with signs or symptoms of the disease (effectiveness of early detection).

B: Accuracy of Screening Tests

The “accuracy of a screening test” is used to describe accuracy and reliability. Accuracy is measured in terms of two indices: sensitivity and specificity (Table 2). Reliability (reproducibility) is the ability to reproduce a test to obtain the same result when repeated.

Table 2.
Definition of Terms

Term	Definition	Formula ^a
Sensitivity	Proportion of persons with condition who test positive	$\frac{a}{a + c}$
Specificity	Proportion of persons without condition who test negative	$\frac{d}{b + d}$
Positive predictive value	Proportion of persons with positive test who have condition	$\frac{a}{a + b}$
Negative predictive value	Proportion of persons with negative test who do not have condition	$\frac{d}{c + d}$

Explanation of symbols

	Condition Present	Condition Absent
Positive test	a	b
Negative test	c	d

Legend:
a = true positive
b = false positive
c = false negative
d = true negative

C: Sensitivity and Specificity

- 1) Sensitivity refers to the proportion of persons with a condition who correctly test “positive” when screened. A test with poor sensitivity will miss cases (persons with the condition) and will produce a large proportion of false-negative results. True cases will be told incorrectly that they are free of disease.
- 2) Specificity refers to the proportion of persons without the condition who correctly test “negative” when screened. A test with poor specificity will result in healthy persons being told that they have the condition (false positives).

D: Positive Predictive Value

The positive predictive value (PPV) is a determination of the likelihood that the patient has the condition. The PPV is the proportion of positive test results that are correct (true positives). The positive predictive value of a test increases as the prevalence increases. See Table 3.

Table 3.
Positive Predictive Value (PPV) and Prevalence

		Testing Conditions			
		Size of population = 100,000			
		Sensitivity of test = 90%			
		Specificity of test 90%			
		Cancer Prevalence 1%		Cancer Prevalence = 01%	
		Cancer Present	Cancer Absent	Cancer Present	Cancer Absent
Positive test		900	9,900	90	9,990
Negative test		100	89,100	10	89,910
		PPV = 8.3%		PPV = 0.9%	

* *Guide to Clinical Preventive Services, Second Edition, Report of the U.S. Preventive Services Task Force*, International Medical Publishing, Inc., 1997, pp. xlii to xlv.

Controversy: Multiple Guidelines Regarding Screening

Throughout medical school and in actual practice, students and physicians refer to guidelines regarding screening. More consensus exists for some guidelines than others. Because many guidelines contain divergent recommendations, lifelong learning is essential. Literature searches and critical appraisal are useful when informed choices must be made about appropriate screening.

The *Guide to Clinical Preventive Services* offers the recommendations of the United States Preventive Services Task Force. These recommendations are evaluated by an interdisciplinary task force.

Put Prevention Into Practice: Clinicians Handbook Of Preventive Services includes “Recommendations of Major Authorities” on screening. Included as an example of differing views among various advisory groups are recommendations on screening for prostate-specific antigen (see below).

Prostate-Specific Antigen Recommendations of Major Authorities

American Academy of Family Physicians - Clinicians should counsel men ages 50 to 65 years about the known risks and uncertain benefits of screening for prostate cancer.

American Cancer Society - Annual PSA testing in combination with annual digital rectal exam should be offered annually beginning at age 50 to all men who have a life expectancy of at least 10 years, or earlier to men at high risk for prostate cancer.

American College of Physicians - Rather than screening all men for prostate cancer as a matter of routine, physicians should describe the potential benefits and known harms of screening, diagnosis, and treatment; listen to the patient’s concerns; and individualize the decision to screen. The College strongly recommends that physicians help enroll eligible men in ongoing clinical studies.

American College of Radiology - Annual PSA testing is recommended for all men aged 50 years and older. Annual PSA testing beginning at age 40 is recommended for African-American men and men with a family history of prostate cancer.

American Urological Association - Annual PSA testing in combination with annual digital rectal examination should be offered to all men aged 50 years and older with a life expectancy of 10 years or more. Annual screening should be offered at age 40 to men at high risk for prostate cancer.

Canadian Task Force on the Periodic Health Examination - Routine use of PSA testing as part of the periodic health examination is not recommended.

US Preventive Services Task Force - Routine screening for prostate cancer with serum tumor markers (eg, PSA), digital rectal examination, or transrectal ultrasound is not recommended.

Put Prevention Into Practice: Clinician's Handbook of Preventive Services, 2nd Edition, U.S. Department of Health and Human Services, 1998, p. 278.

The Periodic Health Examination: Age-Specific Charts & Immunization Schedule

The periodic health visit is an important opportunity for the delivery of clinical preventive services. Identification of specific preventive services that are appropriate for inclusion in the periodic health examination has been one of the principal objectives of the U.S. Preventive Services Task Force project. On the following pages is a series of tables listing specific preventive services that are recommended for patients in different age groups. These tables are taken from *Put Prevention Into Practice: Clinician's Handbook of Preventive Services*, 2nd Edition. International Medical Publishers, 1998.

Note: These evidence-based CDC guidelines are one example of the various guidelines prepared by different organizations. The controversy regarding "age-specific charts" is similar to that described on page 17.

Recommended Immunization Schedules

New York State and New York City Recommended Childhood Immunization Schedule¹ January - December 2002

Vaccines are listed under routinely recommended ages. Bars indicate range of recommended ages for immunization. Any dose not given at the recommended age should be given as a "catch-up" immunization at any subsequent visit when indicated and feasible. Ovals indicate vaccines to be given if previously recommended doses were missed or given earlier than the recommended minimum age. Checks ✓ indicate New York City Department of Health recommended age for receiving these vaccines.

Age ▶ Vaccine ▼	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	24 months	4-6 years	11-12 years	14-18 years
Hepatitis B ²	✓	Hep B #1	Hep B #2 ✓		✓	Hep B #3						Hep B ²
Diphtheria, Tetanus, Pertussis ³			DTaP	DTaP	DTaP	DTaP ³ ✓				DTaP		Td
<i>H. influenzae</i> type b ⁴			Hib	Hib	Hib	Hib ✓						
Inactivated Polio ⁵			IPV	IPV		IPV ⁵ ✓				IPV ⁵		
Pneumococcal Conjugate ⁶			PCV	PCV	PCV	PCV						
Measles, Mumps, Rubella ⁷						MMR ✓				MMR ⁷		MMR ⁷
Varicella ⁸						Var ✓				Var ⁸		
Hepatitis A ⁹										Hep A ⁹ -in selected areas		

Source: Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP).

For additional information about vaccines, vaccine supply, and contraindications for immunization, please visit the National Immunization Program Website at www.cdc.gov/nip or call the National Immunization Hotline at 800-232-2522 (English) or 800-232-0233 (Spanish).

2323

(For Health Care Providers)
4/02

The American Academy of Pediatrics recommends the following four vaccines for teenagers and one vaccine for college students.

Vaccines needed for teenagers:

- Varicella (chicken pox) vaccine
- Hepatitis B vaccines
- Measles-Mumps-Rubella (MMR) vaccine
- Diphtheria-Tetanus vaccine

Vaccines needed for college students:

- Meningococcus vaccine

Table 1. Birth to 10 Years

Interventions Considered and Recommended for the Periodic Health Examination	Leading Causes of Death
	Conditions originating in perinatal period Congenital anomalies Sudden infant death syndrome (SIDS) Unintentional injuries (non-motor vehicle) Motor vehicle injuries
Interventions for the General Population	
SCREENING	Limit fat & cholesterol, maintain caloric balance, emphasize grains, fruits, vegetables (age ≥ 2 yr) [Ch 56]
Height and weight [Ch 21]	Regular physical activity* [Ch 55]
Blood pressure [Ch 3]	
Vision screen (age 3-4 yr) [Ch 33]	
Hemoglobinopathy screen (birth) ¹ [Ch 43]	
Phenylalanine level (birth) ² [Ch 44]	Substance Use [Ch 54]
T4 and/or TSH (birth) ³ [Ch 45]	Effects of passive smoking* Anti-tobacco message*
COUNSELING	
Injury Prevention [Ch 57,58]	Dental Health [Ch 61]
Child safety car seats (age <5 yr)	Regular visits to dental care provider*
Lap-shoulder belts (age ≥ 5 yr)	Floss, brush with fluoride toothpaste daily*
Bicycle helmet, avoid bicycling near traffic	Advice about baby bottle tooth decay*
Smoke detector, flame retardant sleepwear	
Hot water heater temperature <120-130°F	IMMUNIZATIONS [Ch 65]
Window/stair guards, pool fence	Diphtheria-tetanus-pertussis (DTP) ⁴
Safe storage of drugs, toxic substances, firearms, & matches	Oral poliovirus (OPV) ⁵
Syrup of ipecac, poison control phone number	Measles-mumps-rubella (MMR) ⁶
CPR training for parents/caretakers	H. influenzae type b (Hib) conjugate ⁷
	Hepatitis B ⁸
	Varicella ⁹
Diet and Exercise	CHEMOPROPHYLAXIS
Breast-feeding, iron-enriched formula and foods (infants & toddlers) [Ch 22,56]	Ocular prophylaxis (birth) [Ch 27]
Interventions for High-Risk Populations	
POPULATION	POTENTIAL INTERVENTIONS
Preterm or low birth weight	(See detailed high-risk definitions)
Infants of mothers at risk for HIV	Hemoglobin/hematocrit (HR1)
Low income: immigrants	HIV testing (HR2)
TB contacts	Hemoglobin/hematocrit (HR1); PPD (HR3)
Native American/Alaska Native	PPD (HR3)
Travelers to developing countries	Hemoglobin/hematocrit (HR1); PPD (HR3); hepatitis A vaccine (HR4); pneumococcal vaccine (HR5)
Residents of long-term care facilities	Hepatitis A vaccine (HR4)
Certain chronic medical conditions	PPD (HR3); hepatitis A vac. (HR4); influenza vac. (HR6)
	PPD (HR3); pneumococcal vac. (HR5); influenza vac. (HR6)
Increased individual or community lead exposure	Blood lead level (HR7)
Inadequate water fluoridation	Daily fluoride supplement (HR8)
Family h/o skin cancer; nevi; fair skin, eyes, hair	Avoid excess/midday sun, use protective clothing* (HR9)

¹Whether screening should be universal or targeted to high-risk groups will depend on the proportion of high-risk individuals in the screening area and other considerations (see Ch. 43). ²If done during first 24 hr of life, repeat by age 2 wk. ³Optimally between day 2 and 6, but in all cases before newborn nursery discharge, ⁴2, 4, 6, and 12-18 mo; once between ages 4-6 yr (DTaP may be used at 15 mo and older). ⁵2, 4, 6-18 mo; once between ages 4-6 yr. ⁶12-15 mo and 4-6 yr. ⁷2, 4, 6 and 12-15 mo; no dose needed at 6 mo if PRP-OMP vaccine is used for first 2 doses. ⁸Birth, 1 mo, 6 mo; or 0-2 mo, 1-2 mo later, and 6-18 mo. If not done in infancy: current visit, and 1 and 6 mo later. ⁹12-18 mo; older child without hx of chickenpox or previous immunization. Include information on riot in adulthood, duration of immunity, and potential need for booster doses.

*The ability of clinician counseling to influence this behavior is unproven.

HR1 = Infants age 6-12 mo who are: living in poverty, black, Native American or Alaska Native, immigrants from developing countries, preterm or low birth weight infants, or infants whose principal dietary intake is unfortified cow's milk (see Ch. 22).

HR2 = Infants born to high-risk mothers whose HIV status is unknown. Women at high risk include: past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual, or HIV-positive sex partners currently or in past; persons seeking treatment for STDs; blood transfusion during 1978-1985 (see Ch. 28).

HR3 = Persons infected with HIV, close contacts of persons with known or suspected TB, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including the homeless), residents of long-term care facilities. See Ch. 25 for indications for BCG vaccine.

HR4 = Persons ≥ 2 yr living in or traveling to areas where the disease is endemic and where periodic outbreaks occur (e.g., countries with high or intermediate endemicity; certain Alaska Native, Pacific Island, Native American, and religious communities). Consider for institutionalized children aged ≥ 2 yr. Clinicians should also consider local epidemiology (see Ch. 65-67).

HR5 = Immunocompetent persons ≥ 2 yr with certain medical conditions, including chronic cardiac or pulmonary disease, diabetes mellitus, and anatomic asplenia. Immunocompetent persons ≥ 2 yr living in high-risk environments or social settings (e.g., certain Native American and Alaska Native populations) (see Ch. 66).

HR6 = Annual vaccination of children ≥ 6 mo who are residents of chronic care facilities or who have chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression, or renal dysfunction (see Ch. 66). See Ch. 66 for indications for amantadine/rimantadine prophylaxis.

HR7 = Children about age 12 mo who: 1) live in communities in which the prevalence of lead levels requiring individual intervention, including residential lead hazard control or chelation, is high or undefined; 2) live in or frequently visit a home built before 1950 with dilapidated paint or with recent or ongoing renovation or remodeling; 3) have close contact with a person who has an elevated lead level; 4) live near lead industry or heavy traffic; 5) live with someone whose job or hobby involves lead exposure; 6) use lead based pottery; or 7) take traditional ethnic remedies that contain lead (see Ch. 23).

HR8 = Children living in areas with inadequate water fluoridation (<0.6 ppm) (see Ch. 61).

HR9 = Persons with a family history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color (see Ch. 12).

Table 2. Ages 11-24 Years

Interventions Considered and Recommended for the Periodic Health Examination	Leading Causes of Death
	Motor vehicle/other unintentional injuries Homicide Suicide Malignant neoplasms Heart diseases
Interventions for the General Population	
Screening Height & weight [Ch 21] Blood pressure 1 [Ch 3] Papanicolaou (Pap) test2 (females) [Ch 9] Chlamydia screen3 (females <20 yr) [Ch 29] Rubella serology or vaccination hx4 (females >12 yr) [Ch 32] Assess for problem drinking [Ch 52]	behavior;* condoms/female barrier with spermicide* Unintended pregnancy: contraception
Counseling Injury Prevention [Ch 57, 58] Lap/shoulder belts Bicycle/motorcycle/ATV helmets* Smoke detector* Safe storage/removal of firearms* [Ch 50, 59]	Diet and Exercise Limit fat & cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables [Ch 56] Adequate calcium intake (females) [Ch 56] Regular physical activity* [Ch 55]
Substance Use Avoid tobacco use [Ch 54] Avoid underage drinking & illicit drug use* [Ch 52, 53] Avoid alcohol/drug use while driving, swimming, boating, etc.* [Ch 57, 58]	Dental Health [Ch 61] Regular visits to dental care provider* Floss, brush with fluoride toothpaste daily*
Sexual Behavior [Ch 62, 63] STD prevention: abstinence;* avoid high risk	Immunizations [Ch 65, 66] Tetanus-diphtheria (Td) boosters (11-16 yr) Hepatitis B5 MMR (11-12 yr)6 Varicella (11-12 yr)7 Rubella4 (females >12 yr) [Ch 32]
	Chemoprophylaxis Multivitamin with folic acid (females planning/capable of pregnancy) [Ch 42]
Interventions for High-Risk Populations	
POPULATION	POTENTIAL INTERVENTIONS
High-risk sexual behavior	(See detailed high-risk definitions) RPR/VDRL (HR1); screen for gonorrhea (female) (HR2), HIV (HR3), chlamydia (female) (HR4); hepatitis A vaccine (HR5)
Injection or street drug use	RPR/VDRL (HR1); HIV screen (HR3); hepatitis A vaccine (HR5); PPD (HR6); advice to reduce infection risk (HR7) PPD (HR6)
TB contacts; immigrants; low income Native Americans/Alaska Natives	Hepatitis A vaccine (HR5); PPD (HR6); pneumococcal vaccine (HR8)
Travelers to developing countries	Hepatitis A vaccine (HR5)
Certain chronic medical conditions	PPD (HR6); pneumococcal vaccine (HR8); influenza vaccine (HR9)
Settings where adolescents and young adults congregate	Second MMR (HR 10)
Susceptible to varicella, measles, mumps	Varicella vaccine (HR 11); MMR (HR 12)
Blood transfusion between 1978-1985	HIV screen (HR3)
Institutionalized persons; health care/lab workers	Hepatitis A vaccine (HR5); PPD (HR6); influenza vaccine (HR9)
Family h/o skin cancer; nevi; fair skin, eyes, hair	Avoid excess/Midday sun, use protective clothing* (HR13)
Prior pregnancy with neural tube defect	Folic acid 4.0 mg (HR14)
Inadequate water fluoridation	Daily Fluoride supplement (HR15)

¹Periodic BP for persons aged ≥21 yr. ²If sexually active at present or in the past; q≤3 yr. If sexual history is unreliable, begin Pap tests at age 18 yr. ³If sexually active. ⁴Serologic testing, documented vaccination history, and routine vaccination against rubella (preferably with MMR) are equally acceptable alternatives. ⁵If not previously immunized: current visit, 1 and 6 mo later. ⁶If no previous second dose of MMR. ⁷If susceptible to chicken pox.

*The ability of clinician counseling to influence this behavior is unproven.

HR1 = Persons who exchange sex for money or drugs, and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology (see Ch. 26).

HR2 = Females who had two or more sex partners in the last year; a sex partner with multiple sexual contacts; exchanged sex for money or drugs; or a history of repeated episodes of gonorrhea. Clinicians should also consider local epidemiology (see Ch. 27).

HR3 = Males who had sex with males after 1975; past or present injection drug use; persons who exchanged sex for money or drugs, and their sex partners; injection drug-using, bisexual, or HIV-positive sex partner currently or in the past; blood transfusion during 1978-1985; persons seeking treatment for STDs. Clinicians should also consider local epidemiology (see Ch. 28).

HR4 = Sexually active females with multiple risk factors including: history of prior STD; new or multiple sex partners; age under 25; nonuse or inconsistent use of barrier contraceptives; cervical ectopy. Clinicians should consider local epidemiology of the disease in identifying other high-risk groups (see Ch. 29).

HR5 = Persons living in, traveling to, or working in areas where the disease is endemic and where periodic outbreaks occur (e.g., countries with high or intermediate endemicity; certain Alaska Native, Pacific Island, Native American, and religious communities); men who have sex with men; injection or street drug users. Vaccine may be considered for institutionalized persons and workers in these institutions, military personnel, and day-care, hospital, and laboratory workers. Clinicians should also consider local epidemiology (see Ch. 66, 67).

HR6 = HIV positive, close contacts of persons with known or suspected TB, health care workers, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term care facilities (see Ch. 25). See Ch. 25 for indications for BCG vaccine.

HR7 = Persons who continue to inject drugs (see Ch. 53).

HR8 = Immunocompetent persons with certain medical conditions, including chronic cardiac or pulmonary disease, diabetes mellitus, and anatomic asplenia. Immunocompetent persons who live in high-risk environments or social settings (e.g., certain Native American and Alaska Native populations) (see Ch. 66).

HR9 = Annual vaccination of: residents of chronic care facilities; persons with chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression or renal dysfunction; health care providers for high-risk patients (see Ch. 66). See Ch. 66 for indication for amantadine/rimantadine prophylaxis.

HR10 = Adolescents and young adults in settings where such individuals congregate (e.g., high schools and colleges), if they have not previously received a second dose (see Ch. 65, 66).

HR11 = Healthy persons aged ≥ 13 yr without a history of chickenpox or previous immunization. Consider serologic testing for presumed susceptible persons aged ≥ 13 yr (see Ch. 65,66).

HR12 = Persons born after 1956 who lack evidence of immunity to measles or mumps (e.g., documented receipt of live vaccine on or after the first birthday, laboratory evidence of immunity, or a history of physician-diagnosed measles or mumps) (see Ch. 65,66).

HR13 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color (see Ch. 12).

HR14 = Women with prior pregnancy affected by neural tube defect who are planning pregnancy (see Ch. 42).

HR15 = Persons aged < 17 yr living in areas with inadequate water fluoridation (< 0.6 ppm) (see Ch. 61).

Table 3. Ages 25-64 Years

Interventions Considered and Recommended for the Periodic Health Examination	Leading Causes of Death
<p>Screening Blood pressure [Ch 3] Height and weight [Ch 21] Total blood cholesterol (men ages 35-65, women ages 45-65) [Ch 2] Papanicolaou (Pap) test (women)1 [Ch 9] Fecal occult blood test2 and/or sigmoidoscopy (≥50 yr) [Ch 8] Mammogram ± clinical breast exam3 (women 50-69 yr) [Ch 7] Assess for problem drinking [Ch 52] Rubella serology or vaccination hx4 (women of childbearing age) [Ch 32] Counseling Substance Use Tobacco cessation [Ch 54] Avoid alcohol/drug use while driving, swimming, boating, etc.* [Ch 57,58] Diet and Exercise Limit fat & cholesterol; maintain caloric balance; emphasize grains, fruits, vegetables [Ch 56] Adequate calcium intake (women) [Ch 56]</p>	<p>Malignant neoplasms Heart diseases Motor vehicle and other unintentional injuries Human immunodeficiency virus (HIV) infection Suicide and homicide</p> <hr/> <p style="text-align: center;">Interventions for the General Population</p> <hr/> <p>Regular physical activity* [Ch 55] Injury Prevention [Ch 57,58] Lap/shoulder belts Motorcycle/bicycle/ATV helmets* Smoke detector* Safe storage/removal of firearms* [Ch 50,59] Sexual Behavior [Ch 62,63] STD prevention: avoid high-risk behavior;* condoms/female barrier with spermicide* Unintended pregnancy: contraception Dental Health [Ch 61] Regular visits to dental care provider* Floss, brush with fluoride toothpaste daily* Immunizations [Ch 32,66] Tetanus-diphtheria (Td) boosters Rubella4 (women of childbearing age) Chemoprophylaxis Multivitamin with folic acid (women planning or capable of pregnancy) [Ch 42] Discuss hormone prophylaxis (peri- and postmenopausal women) [Ch 68]</p>
Interventions for High-Risk Populations	
<p>POPULATION High-risk sexual behavior Injection or street drug use Low income; TB contact; immigrants; alcoholics Native Americans/Alaska Natives Travelers to developing countries Certain chronic medical conditions Blood product recipients Susceptible to measles, mumps, or varicella Institutionalized persons Health care/lab workers Family h/o skin cancer; fair skin, eyes, hair Previous pregnancy with neural tube defect</p>	<p>POTENTIAL INTERVENTIONS (See detailed high-risk definitions) RPR/VDRL (HR1); screen for gonorrhea (female) (HR2), HIV (HR3), chlamydia (female) (HR4); hepatitis B vaccine (HR5); hepatitis A vaccine (HR6) RPR/VDRL (HR1); HIV screen (HR3); Hepatitis B vaccine (HR5); hepatitis A vaccine (HR6); PPD (HR7); advice to reduce infection risk (HR8) PPD (HR7) Hepatitis A vaccine (HR6); PPD (HR7); pneumococcal vac. (HR9) Hepatitis B vaccine (HR5); hepatitis A vaccine (HR6) PPD (HR7); pneumococcal vaccine (HR9); influenza vac. (HR10) HIV screen (HR3); hepatitis B vaccine (HR5) MMR (HR11); varicella vaccine (HR12) Hepatitis A vaccine (HR6); PPD (HR7); pneumococcal vaccine (HR9); influenza vaccine (HR10) Hepatitis B vaccine (HR5); hepatitis A vaccine (HR6); PPD (HR7); influenza vaccine (HR10) Avoid excess/midday sun, use protective clothing* (HR13) Folic acid 4.0 mg (HR14)</p>

¹Women who are or have been sexually active and who have a cervix; q≤ 3 yr. ²Annually. ³Mammogram q1-2 yr, or mammogram with annual clinical breast examination. ⁴Serologic testing, documented vaccination history, and routine vaccination (preferably with MMR) are equally acceptable alternatives.

*The ability of clinician counseling to influence this behavior is unproven.

HR1 = Persons who exchange sex for money or drugs, and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology (see Ch. 26).

HR2 = Women who exchange sex for money or drugs, or who have had repeated episodes of gonorrhea. Clinicians should also consider local epidemiology (see Ch. 27).

HR3 = Men who had sex with men after 1975; past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual, or HIV-positive sex partner currently or in the past; blood transfusion during 1978-1985; persons seeking treatment for STDs. Clinicians should also consider local epidemiology (see Ch. 28).

HR4 = Sexually active women with multiple risk factors including: history of STD; new or multiple sex partners; nonuse or inconsistent use of barrier contraceptives; cervical ectopy. Clinicians should also consider local epidemiology (see Ch. 29).

HR5 = Blood product recipients (including hemodialysis patients), persons with frequent occupational exposure to blood or blood products, men who have sex with men, injection drug users and their sex partners, persons with multiple recent sex partners, persons with other STDs (including HIV), travelers to countries with endemic hepatitis B (see Ch. 66).

HR6 = Persons living in, traveling to, or working in areas where the disease is endemic and where periodic outbreaks occur (e.g., countries with high or intermediate endemicity; certain Alaska Native, Pacific Island, Native American, and religious communities); men who have sex with men; injection or street drug users. Consider for institutionalized persons and workers in these institutions, military personnel, and day-care, hospital, and laboratory workers. Clinicians should also consider local epidemiology (see Ch. 66, 67).

HR7 = HIV positive, close contacts of persons with known or suspected TB, health care workers, persons with medical risk factors associated with TB, immigrants from countries with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term care facilities (see ch. 25). See Ch. 25 for indications for BCG vaccine.

HR8 = Persons who continue to inject drugs (see Ch. 53).

HR9 = Immunocompetent institutionalized persons aged ≥ 50 yr and immunocompetent persons with certain medical conditions, including chronic cardiac or pulmonary disease, diabetes mellitus, and anatomic asplenia. Immunocompetent persons who live in high-risk environments or social settings (e.g., certain Native American and Alaska Native populations) (See Ch.66).

HR10 = Annual vaccination of residents of chronic care facilities; persons with chronic cardiopulmonary disorders, metabolic diseases (including diabetes mellitus), hemoglobinopathies, immunosuppression, or renal dys-

function; and health care providers for high-risk patients (Ch. 66). See Ch. 66 for indications for amantadine/rimantadine prophylaxis.

HR11 = Persons born after 1956 who lack evidence of immunity to measles or mumps (e.g., documented receipt of live vaccine on or after the first birthday, laboratory evidence of immunity, or a history of physician-diagnosed measles or mumps) (see Ch. 66).

HR12 = Healthy adults without a history of chickenpox or previous immunization. Consider serologic testing for presumed susceptible adults (see Ch. 65, 66).

HR13 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color (see Ch. 12).

HR14 = Women with previous pregnancy affected by neural tube defect who are planning pregnancy (see Ch. 42).

Table 4. Age 65 and Older

Intervention Considered and Recommended for the Periodic Health Examination	Leading Causes of Death
	Heart diseases Malignant neoplasms (lung, colorectal, breast) Cerebrovascular disease Chronic obstructive pulmonary disease Pneumonia and influenza
Interventions for the General Population	
<p>Screening Blood pressure [Ch 3] Height and weight [Ch 21] Fecal occult blood test¹ and/or sigmoidoscopy [Ch 8] Mammogram ± clinical breast exam² (women ≤69 yr) [Ch 7] Papanicolaou (Pap) test (women)³ [Ch 9] Vision screening [Ch 33] Assess for hearing impairment [Ch 35] Assess for problem drinking [Ch 52]</p> <p>Counseling</p> <p>Substance Use Tobacco cessation [Ch 54] Avoid alcohol/drug use while driving, swimming, boating, etc.* [Ch 57,58]</p> <p>Diet and Exercise Limit fat & cholesterol; maintain coloric balance; emphasize grains, fruits, vegetables [Ch 56] Adequate calcium intake (women) [Ch 56] Regular physical activity* [Ch 55, 58]</p>	<p>Injury Prevention [Ch 57,58] Lap/shoulder belts Motorcycle and bicycle helmets* Fall prevention* Safe storage/removal of firearms* [Ch 50, 59] Smoke detector* Set hot water heater to <120-130°F* CPR training for household members</p> <p>Dental Health [Ch 61] Regular visits to dental care provider* Floss, brush with fluoride toothpaste daily*</p> <p>Sexual Behavior STD prevention: avoid high-risk sexual behavior;* use condoms* [Ch 6]</p> <p>Immunizations [Ch 66] Pneumococcal vaccine Influenza1 Tetanus-diphtheria (Td) boosters Chemoprophylaxis Discuss hormone prophylaxis (women) [Ch 68]</p>
Interventions for High-Risk Populations	
POPULATION	POTENTIAL INTERVENTIONS
<p>Institutionalized persons</p> <p>Chronic medical conditions; TB contacts; low income; immigrants; alcoholics</p> <p>Persons ≥75 yr; or ≥70 yr with risk factors for falls</p> <p>Cardiovascular disease risk factors</p> <p>Family h/o skin cancer; nevi; fair skin, eyes, hair Native Americans/Alaska Natives</p> <p>Travelers to developing countries</p> <p>Blood product recipients</p> <p>High-risk sexual behavior</p> <p>Injection or street drug use</p> <p>Health care/lab workers</p> <p>Persons susceptible to varicella</p>	<p>(see detailed high-risk definitions)</p> <p>PPD (HR1); hepatitis A vac. (HR2; amantadine/rimantadine (HR4)</p> <p>PPD (HR1)</p> <p>Fall prevention intervention (HR5)</p> <p>Consider cholesterol screening (HR6)</p> <p>Avoid excess/midday sun, use protective clothing* (HR7)</p> <p>PPD (HR1); hepatitis A vaccine (HR2)</p> <p>Hepatitis A vaccine (HR2); hepatitis B vaccine (HR8)</p> <p>HIV screen (HR3); hepatitis B vaccine (HR8)</p> <p>Hepatitis A vaccine (HR2); HIV screen (HR3); hepatitis B vaccine (HR8); RPR/VDRL (HR9)</p> <p>PPD (HR1); hepatitis A vaccine (HR2); HIV screen (HR3); hepatitis B vaccine (HR8); RPR/VDRL (HR9); advice to reduce infection risk (HR10)</p> <p>PPD (HR1); hepatitis A vaccine (HR2); amantadine/rimantadine (HR4); hepatitis B vaccine (HR8)</p> <p>Varicella vaccine (HR11)</p>

¹Annually. ²Mammogram q1-2 yr, or mammogram q1-2 yr with annual clinical breast exam. ³All women who are or have been sexually active and who have a cervix; q≤3 yr. Consider discontinuation of testing after age 65 yr if previous regular screening with consistently normal results.

*The ability of clinician counseling to influence this behavior is unproven.

HR1 = HIV positive, close contacts of persons with known or suspected TB, health care workers, persons with medical risk factors associated with TB, immigrants from counties with high TB prevalence, medically underserved low-income populations (including homeless), alcoholics, injection drug users, and residents of long-term care facilities (see Ch. 25). See Ch. 25 for indications for BCG vaccine.

HR2 = Persons living in, traveling to, or working in areas where the disease is endemic and where periodic outbreaks occur (e.g., countries with high or intermediate endemicity; certain Alaska Native, Pacific Island, Native American, and religious communities); men who have sex with men; injection or street drug users. Consider for institutionalized persons and workers in these institutions, and day-care, hospital, and laboratory workers. Clinicians should also consider local epidemiology (see Ch. 66,67).

HR3 = Men who had sex with men after 1975; past or present injection drug use; persons who exchange sex for money or drugs, and their sex partners; injection drug-using, bisexual, or HIV-positive sex partner currently or in the past; blood transfusion during 1978-1985; persons seeking treatment for STDs. Clinicians should also consider local epidemiology (see Ch. 28).

HR4 = Consider for persons who have not received influenza vaccine or are vaccinated late; when the vaccine may be ineffective due to major antigenic changes in the virus; for unvaccinated persons who provide home care for high-risk persons; to supplement protection provided by vaccine in persons who are expected to have a poor antibody response; and for high-risk persons in whom the vaccine is contraindicated (See Ch. 66).

HR5 = Persons aged 75 years and older; or aged 70-74 with one or more additional risk factors including: use of certain psychoactive and cardiac medications (e.g., benzodiazepines, antihypertensives); use of ≥ 4 prescription medications; impaired cognition, strength, balance, or gait. Intensive individualized home-based multifactorial fall prevention intervention is recommended in settings where adequate resources are available to deliver such services (see Ch. 58).

HR6 = Although evidence is insufficient to recommend routine screening in elderly persons, clinicians should consider cholesterol screening on a case-by-case basis for persons ages 65-75 with additional risk factors (e.g., smoking, diabetes, or hypertension) (see Ch. 2).

HR7 = Persons with a family or personal history of skin cancer, a large number of moles, atypical moles, poor tanning ability, or light skin, hair, and eye color (see Ch. 12).

HR8 = Blood product recipients (including hemodialysis patients), persons with frequent occupational exposure to blood or blood products, men who have sex with men, injection drug users and their sex partners, persons with multiple recent sex partners, persons with other STDs (including HIV), travelers to countries with endemic hepatitis B (see Ch. 66).

HR9 = Persons who exchange sex for money or drugs and their sex partners; persons with other STDs (including HIV); and sexual contacts of persons with active syphilis. Clinicians should also consider local epidemiology (see Ch. 26).

HR10 = Persons who continue to inject drugs (see Ch. 53).

HR11 = Healthy adults without a history of chickenpox or previous immunizations. Consider serologic testing for presumed susceptible adults (see Ch. 65, 66).

Table 5. Pregnant Women **

Interventions Considered and Recommended for the Periodic Health Examination

Interventions for the General Population	
SCREENING	[Ch 41]
First visit	Offer multiple marker testing ¹ (15-18 wk)
Blood pressure [Ch 3, 37]	[Ch 41]
Hemoglobin/hematocrit [Ch 22]	Offer serum a-fetoprotein ¹ (16-18 wk)
Hepatitis B surface antigen (HbsAg) [Ch 24]	[Ch 42]
RPR/VDRL [Ch 26]	Counseling
Chlamydia screen (<25 yr) [Ch 29]	Tobacco cessation; effects of passive smoking
Rubella serology or vaccination hx [Ch 32]	[Ch 54]
D(Rh) typing, antibody screen [Ch 32]	Alcohol/other drug use [Ch 52, 53]
Offer CVS (<13 wk) ¹ or amniocentesis (15-18 wk) ¹ (age ≥35 yr) [Ch 41]	Nutrition, including adequate calcium intake
Offer hemoglobinopathy screening [Ch 43]	[Ch 56]
Assess for problem or risk drinking [Ch 52]	Encourage breastfeeding [Ch 22,56]
Offer HIV screening 2 [Ch 28]	Lap/shoulder belts [Ch 57]
Follow-up visits	Infant safety car seats [Ch 57]
Blood pressure [ch 3, 37]	STD prevention: avoid high-risk sexual behavior;* use condoms* [Ch 62]
Urine culture (12-16 wk) [Ch 31]	Chemoprophylaxis
Offer amniocentesis (15-18 wk) ¹ (age ≥35 yr)	Multivitamin with folic acid ³ [Ch 42]
Interventions for High-Risk Populations	
POPULATION	POTENTIAL INTERVENTIONS
High-risk sexual behavior	(See detailed high-risk definitions)
Blood transfusion 1978-1985	Screen for chlamydia (1st visit) (HR1), gonorrhea (1st visit) (HR 2), HIV (1st visit) (HR3; HvsAg (3rd trimester) (HR4); RPR/VDRL (3rd trimester) (HR 5)
Injection drug use	HIV screen (1st visit) (HR 3)
Unsensitized D-negative women	HIV screen (HR 3); HbsAg (3rd trimester) (HR4); advice to reduce infection risk (HR 6)
Risk factory for Down syndrom	D(Rh) antibody testing (24-28 wk) (HR7)
Prior pregnancy with neural tube defect	Offer CVS ¹ (1st trimester), amniocentesis ¹ (15-18 wk) (HR 8)
	Folic acid 4.0 mg, ³ offer amniocentesis ¹ (15-18 wk)

¹Women with access to counseling and follow-up services, reliable standardized laboratories, skilled high-resolution ultrasound, and, receiving serum marker testing, amniocentesis capabilities. ²Universal screening is recommended for areas (states, countries, cities) increased prevalence of HIV infection among pregnant women. In low-prevalence areas, the choice between universal and targeted screening may depend on other considerations (see Ch. 28). ³Beginning at least 1 mo before conception and continuing through the first trimester.

*The ability of clinician counseling to influence this behavior is unproven.

** See Tables 2 and 3 for other preventive services recommended for women of childbearing age.

Resources

Listed below are resources on preventive medicine topics. Some are located in the Resource Area of the Health Sciences Library in Weiskotten Hall. Literature searches and consultations with librarians and preceptors are encouraged.

American Academy of Pediatrics, *The Report of the Committee on Infectious Disease* (The Red Book), 1997.

American Association of Medical Colleges (AAMC), *Medical Schools Objectives Project Report II, Contemporary Issues in Medicine: Medical Informatics and Population Health*, 1998.

Association of Teachers of Preventive Medicine (ATPM), *An Inventory of Knowledge and Skills Relating to Disease Prevention and Health Promotion*, 1994.

Diabetes Care, 20:1183, 1997

Guide to Clinical Preventive Services, Third Edition: Report of the United States Preventive Services Task Force, International Medical Publishing, Inc. 2002.

Health Sciences Library, Upstate Medical University, Syracuse, New York, *Fast Tips For Searching Ovid Medline*, Ingui, Bette Jean, 1999.

International Medical Publishers, *Put Prevention Into Practice: Clinician's Handbook of Preventive Services, 2nd Edition*, 1998.

Miller, William R. and Rollnick, Stephen, *Motivational Interviewing: Preparing People to Change Addictive Behavior*, The Guilford Press, New York, 1991.

Morbidity and Mortality Weekly Reports (MMWR).

Novick, LF and Mays, G, *Public Health Administration: Principles for Population Based Management*, Aspen Publications, August 2000

Onondaga County Health Department, Syracuse, New York, *Community Health Assessment, 1999-2004*, Novick, LF, 1998.

Onondaga County Health Department, Syracuse, New York, *Animal Report*, Novick, LF, 2001.

United States Public Health Services, *Guide to Community Preventive Services*, December 2000.

Websites

Agency for Healthcare Research and Quality

Location: <http://www.ahrq.gov/>

American Diabetes Association

Location: <http://www.diabetes.org/>

Centers for Disease Control and Prevention

Location: <http://www.cdc.gov/>

Centers for Disease Control and Prevention Guidelines Database

Location: http://aepo-xdv-www.epo.cdc.gov/wonder/prevguid/search_prevguid.htm

CenterWatch Clinical Trials Listing Service (clinical trials and new FDA approved drug therapies)

Location: <http://www.CenterWatch.com/main.htm>

The Cochrane Library

Location: <http://www.update-software.com/ccweb/cochrane/cdsr.htm>

Also available from the Library's homepage: <http://www.hscsyu.edu/library/>

Department of Health and Human Services

Location: <http://158.72.20.10/pubs/guidecaps/>

Evidence Based Health Care Practitioners Links (McMaster University)

Location: <http://www-hsl.mcmaster.ca/tomflem/all.html>

Evidence-Based Medicine: What it is and what it isn't. (Oxford University)

Location: <http://cebm.jr2.ox.ac.uk/ebmisnt.html>

Guide to Clinical Preventive Services

Location: <http://text.nlm.nih.gov/>

National Guideline Clearinghouse (NGC)

Location: <http://www.guideline.gov/>

National Library of Medicine

Location: <http://text.nlm.nih.gov/ftrs/pick?collect=cps&ftrsK=0&t=957276192>

National Osteoporosis Foundation

Location: <http://www.nof.org/>

New York Academy of Medicine EBM Links

Location: <http://www.ebmny.org/links.html>

Oxford University Centre for Evidence-Based Medicine

Location: <http://cebm.jr2.ox.ac.uk/>

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