Pharmacy 445
Public Health Applications in Pharmacy
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Pharmacists’ Role

Promotion of health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers


Public or Community Health

• Distinct from clinical medicine, which focuses upon an individual person
• Focus on defined population, including those who do not seek medical attention
• Protection of entire community is the target; can even de-emphasize individual rights or comfort
  – E.g., quarantine, notification of contacts, mandatory reporting of diagnoses

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Public Health Origins

• Traditions of communicable disease eradication
• Greatest progress made through improvements in sanitation: water quality, sewage management, hand washing
• Vaccines and antibiotics move populations ahead, so that until recently greatest need was in chronic disease areas.

Broad Street Pump: London, 1854

Disease Dynamics

• Endemic occurrence
  – Habitual presence or usual prevalence within a geographical area
• Epidemic occurrence
  – Appearance in excess of normal expectancy
Primary Public Health Institutions

- World Health Organization (WHO)
- Centers for Disease Control and Prevention (CDC)
- American Public Health Association (APHA)
- State and local health departments

Natural History of Disease

- Stage of susceptibility
  - Factors are present which favor disease occurrence - “risk factors” - some alterable, some not
- Stage of presymptomatic disease
  - Unrecognized pathogenic changes have begun to occur, inapparent infection is present

Natural History of Disease, continued

- Stage of clinical disease
  - Recognizable signs and symptoms
  - Classification or staging is possible
- Stage of disability
  - Limitation of activities or roles
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<tr>
<th>Levels of Prevention</th>
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<tr>
<td><strong>• Primary prevention</strong></td>
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<td>– Environmental health management</td>
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<td>– General health promotion, specific protective measures</td>
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<td><strong>• Secondary prevention</strong></td>
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<td>– Cure or slowing of progression through early detection, prompt treatment</td>
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<td><strong>• Tertiary prevention</strong></td>
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<td>– Limitation of disability, rehabilitation</td>
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<th>WHO Criteria for Screening for Early Detection</th>
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<tr>
<td><strong>• Condition should be important health problem</strong></td>
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<td><strong>• Accepted treatment available</strong></td>
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<td><strong>• Facilities for diagnosis and treatment available</strong></td>
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<td><strong>• Recognizable latent or early symptomatic stage</strong></td>
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<td><strong>• Suitable test or examination</strong></td>
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<th>WHO Criteria for Screening for Early Detection, continued</th>
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<tr>
<td><strong>• Test acceptable to population</strong></td>
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<tr>
<td><strong>• Adequate understanding of natural history</strong></td>
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<td><strong>• Agreed policy on whom to treat</strong></td>
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<td><strong>• Cost of case-finding economical relative to total cost of condition</strong></td>
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<td><strong>• Case-finding a continuous, not one-time process</strong></td>
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Screening for Inapparent Disease

Requires the ability to distinguish between those who have the condition and those who do not.

Screening for Inapparent Disease, continued

• Test validity - assurance that it measures what it is expected to measure
  • sensitivity - ability to identify those who HAVE
  • specificity - ability to identify those who HAVE NOT
• Test Reliability - ability to produce consistent results on repetition

Risk Factor Screening

• Identification of modifiable factors which, if successfully altered, can prevent disease or change the course of the condition
• Recognition of unmodifiable factors which place people at excess risk of disease or condition so that people can make alternative choices about their health
Preventable Risk Factors for Infectious Disease

• Incomplete childhood and adult immunizations
• Unprotected sexual intercourse with multiple partners, or with one partner who has multiple partners
• Inadequate screening for TB exposures

Preventable Risk Factors for Chronic Diseases

• Cigarette smoking
• Obesity
• Lack of exercise
• Heavy consumption of alcohol
• Failure to use screening tools
Modifiable Risk Factors for Chronic Diseases

- Hypertension
- Hyperlipidemia

National Health Priorities - 2010

- Increase quality and years of healthy life for all Americans
- Eliminate health disparities among Americans

Healthy People 2010 - Immunization Priorities

- Increase the proportion of young children who receive all vaccines that have been recommended for universal administration for at least 5 years
- Increase the proportion of noninstitutionalized adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease.
Immunization Coverage Targets: Healthy People 2010

- Noninstitutionalized adults aged 65 years and older and institutionalized adults (persons in long-term care or nursing homes)
  - Influenza vaccine 90%
  - Pneumococcal vaccine 90%

- Noninstitutionalized high-risk adults aged 18 to 64 years
  - Influenza vaccine 60%
  - Pneumococcal vaccine 60%

Healthy People 2010 Health Behavior Counseling Priorities

- Physical activity
- Diet/nutrition
- Smoking cessation
- Unintended pregnancy prevention
- Sexually transmitted disease prevention
- Menopause management
Healthy People 2010 Goal

Reduce hospitalization rates for three ambulatory-care-sensitive conditions—pediatric asthma, uncontrolled diabetes, and immunization-preventable pneumonia and influenza.

Healthy People 2010 Goal

Increase the proportion of health professional training schools whose basic curriculum for health care providers includes the core competencies in health promotion and disease prevention.
Guidelines for Pharmacy School Curriculum re Public Health¹

• Assure the availability of effective, quality health and disease prevention services
• Develop public health policy


Pharmacists’ Activities in Health Promotion and Disease Prevention

• Screening and monitoring - BP, lipids, bone density, glucose, body composition, fitness, anticoagulation
• Education and information
• (Routine verbal screening for current risk factors - smoking, immunizations, exercise patterns, diet)
• Active immunization, contraception programs
• Partnerships with prescribers
• Referrals for further diagnosis and care

CALCIUM
Legislative Support for Pharmacists’ Activities

- Pharmacy Practice Act - RCW 18.64.011
- Every category of provider - RCW 48.43.045
- Diabetes cost reduction act - RCW 41.05.185

Pharmacy Practice Act

“…the compounding, dispensing, labeling, administering, and distributing of drugs and devices; the monitoring of drug therapy and use; the initiating or modifying of drug therapy in accordance with written guidelines or protocols previously established and approved for his or her practice by a practitioner authorized to prescribe drugs…."

Every Category of Provider

Every health plan delivered, issued for delivery, or renewed by a health carrier on and after January 1, 1996, shall permit every category of health care provider to provide health services or care for conditions included in the basic health plan services to the extent that the provision of such health services or care is within the health care providers' permitted scope of practice.
Diabetes cost reduction act

- For all state-purchased health care, outpatient self-management training and education, including medical nutrition therapy, as ordered by the health care provider.
- Diabetes outpatient self-management training and education may be provided only by health care providers with expertise in diabetes.

Evidence of Pharmacist’s Contributions to Public Health

- Convenience a major factor in adults’ choice of vaccine provider\(^a\)
- Rates of immunization among high-risk rural patients nearly doubled (28% to 54%) in pharmacist managed vaccination program\(^b\)
- Pharmacists surveyed in 2001 report providing influenza, pneumococcal, varicella, Hepatitis A, B, tetanus, Lyme disease\(^c\)
- Medicare reimburses pharmacists for vaccinating beneficiaries

Evidence of Pharmacist’s Contributions to Public Health

- Asheville project improves diabetes patient outcomes, reduces medical costs\(^a\)
- Studies in which pharmacists can independently initiate or adjust medication significantly improved outcome of diabetes management\(^b\)
- Pharmacist-managed, physician-monitored lipid service improved compliance with national guidelines\(^c\)

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\(^a\) A. J Am Pharm Assoc (Wash). 2003 Mar-Apr;43(2):173-4
\(^b\) B. Pharmacotherapy. 2003 Sep;23(9):1153-2
Evidence of Pharmacist’s Contributions to Public Health

• Pharmacist-directed smoking cessation program is a cost-effective alternative to a self-directed quit attempt\(^a\)
• Community pharmacist-managed smoking cessation clinic achieved greater long-term smoking cessation rates\(^b\)
• Community pharmacists detected osteoporosis risk factors for people who had no knowledge of their risk\(^c\)

\(^a\) Pharmacotherapy. 2002 Dec;22(12):1623-31
\(^b\) J Am Pharm Assoc (Wash). 2002 Jan-Feb;42(1):51-6
\(^c\) J Am Pharm Assoc (Wash DC). 2004 Mar-Apr;44(2):152-60