1. Veterinary Public Health

Veterinary Public Health
Spring 2007
V’09
Joann M. Lindenmayer, DVM, MPH
Department of Environmental and Population Health
Tufts Cummings School of Veterinary Medicine

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2. Overview

Overview

Source: http://sci-jrks.jpl.nasa.gov

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3. The Great Divide

The Great Divide

- “What are you doing here?”
  – Senior Administrator, Public Health Program, Neighboring Medical School
- “I didn’t know there was such a thing as Veterinary Public Health.”
  – Fellow vacationer in Florida
- “I had never heard the words veterinary and public health put together in the same sentence until now.”
  – Physician and senior administrator, local Medical School

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4. Changing Veterinary Medicine’s Public Image in the 21st Century

A Punch List for Changing Veterinary Medicine’s Public Image in the 21st Century

- “Of approximately 1,400 conference attendees...of Healthy People 2010...only six were veterinarians. Nevertheless, other health care professionals challenged those veterinarians in attendance with the question ‘What are you (veterinarians) doing here?’ and with the statement ‘I thought veterinarians treated animals. I didn’t know they really had a role in public health.’”

Hendrix CM et al. JAVMA 2006;228(4):506-10

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5. My SOHCO*s about Veterinary Public Health

My SOHCO*s about Veterinary Public Health

- Veterinarians are public health practitioners
- Veterinarians’ role is unique because of the comparative nature of their studies
- Veterinarians play a critical role in public health
- Veterinarians are neither recognized nor supported for the public health work they do
- Climate change begins in the classroom

*SINGLE OVERRIDING HEALTH COMMUNICATIONS OBJECTIVES

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6. General Course Approach

General Course Approach

- Integration of two frameworks
  - 10 Essential Public Health Services
  - American College of Veterinary Preventive Medicine Public Health/Preventive Medicine Curriculum (195 hours, 45 optional)
    - Food safety
    - Zoonoses
    - Foreign animal diseases
    - Environmental health
    - Community health
    - Epidemiology and biostatistics

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7. General Course Approach

General Course Approach

- Each course topic
  - One EPHS
  - Relevant areas of the ACVPM curriculum
  - at least one example from veterinary public health to illustrate
- US-based with a few exceptions
- References in the public domain – journal articles and websites
  - Reinforce and add to topics we can only begin to cover in class
  - Help you navigate around public health cyberspace
- Slides on TUSK after each class

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8. Grading

Grading

- Participation in class: 10 points
  - Being there
  - Prepared to discuss an article, answer a question about one, offer an opinion about one
- Homework: 2 essays x 20 points each
  - Surveillance topic
  - Policy topic
- Final project:
  - Take-home exam (individual)
  - Draft of veterinarians’ role in one of the ten EPHS (workgroup)

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9. Great Expectations

Great Expectations


10. Veterinary Public Health: Slide 10

Source: http://www.in.gov/and/public

Source: http://lit.water.usgs.gov/birds/index.html

Introduction to Veterinary Public Health

Class Objectives

- Discuss the similarities and differences between clinical medicine and population health
- Discuss the relationship between public health and population health
- Define public health and veterinary public health
- Define the public health system
- Briefly describe the frameworks that underlie public health
- Describe the general organization of the public health system and the distribution of veterinarians at all levels and all agencies
- Discuss the distribution of funding for prevention activities and for key elements of the public health system
- Articulate your opinions about the “Lifeboat” article
- Know which websites to go to for information about public health and veterinary medicine
Clinical Medicine and Population Health

Clinical Medicine and Population Health

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Clinical Medicine

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15. Population Medicine (Public Health)

16. How are clinical medicine and population medicine related?...

Q: How are clinical medicine and population medicine related?
17. Relationship between Public Health and Population Health

Relationship between Public Health and Population Health

18. History

History

- Egypt: healer priests drew no distinctions between caring for human patients and animals
- UK: had to earn MD to go to veterinary school
- In the 19th century the gulf between human and veterinary medicine began to increase
  - Ascendancy of the medical profession and its influence on politics and culture
  - Not due to scientific logic (C. Schwabe: Cattle, Priests and Progress in Medicine)

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19. Health of Human Populations

Health of Human Populations

• Public health: “Yet the historic origins of epidemiology are predominantly if not exclusively in medicine...In this century, epidemiology and public health have often withered in a medical environment that almost inevitably must give primacy to the individual care of sick persons who solicit care.”


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20. Relationship between Public Health and Medicine

Relationship between Public Health and Medicine

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21. Hippocratic Oath Today

Hippocratic Oath Today

I swear to fulfill, to the best of my ability and judgment, this covenant:

I will respect the hard-won scientific gains of those physicians in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow. I will apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism. I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.

I will not be ashamed to say "I know not," nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery. I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life: this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God. I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.

I will prevent disease whenever I can, for prevention is preferable to cure. I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm. If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.

Louis Lasagna, Academic Dean of the School of Medicine at Tufts University, 1964

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22. Veterinarians' Oath

Veterinarians' Oath

- Being admitted to the profession of veterinary medicine, I solemnly swear to use my scientific knowledge and skills for the benefit of society through the protection of animal health, the relief of animal suffering, the conservation of livestock resources, the promotion of public health and the advancement of medical knowledge.

- I will practice my profession conscientiously, with dignity and in keeping with the principles of veterinary medical ethics.

- I accept as a lifelong obligation the continual improvement of my professional knowledge and competence.

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23. Relationship between Population Health, Public Health and Veterinary Medicine

24. Describe the relationship between public health and population health...

Q: How would you describe the relationship between public health and population health?

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25. What is Public Health?

What is Public Health?

26. The Public

The Public

“It’s probably to keep the general population healthy and to have enough vaccines and things like that to treat people when they need it.”

Mom, 2006
The Public

In a 1996 Louis Harris and Associates Poll, 1,004 respondents were asked "What do the words 'public health' mean to you?" and fewer than 4% gave answers corresponding to what interviewers generally regarded as referring to public health.


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Health Professionals

- "As a laboratory scientist, a science writer, and a citizen, I always had a vague sense of uncertainty when I heard or read the term Public health. When in 1986 I accepted a position as an administrator to help build the new School of Public Health in Albany, New York, a collaboration between the University at Albany and the New York State Department of Health, that sense of uncertainty became more acute. What is public health? If we don't understand what it is, how can we create a school to teach it? I found that I was not alone in my confusion. When I asked the question of those around me, some struggled to explain, while others admitted that their understanding was a vague as my own."


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29. What is Public Health?

What is Public Health?

- “The science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.”

CAE Winslow, 1923

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30. What is Veterinary Public Health?

What is Veterinary Public Health?

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31. The Public’s Perception of Veterinary Medicine

The Public’s Perception of Veterinary Medicine

James Herriot, country veterinarian from the Yorkshire Dales

Source: Dave Sag http://www.flickr.com

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32. Veterinary Public Health

Veterinary Public Health

“Veterinarians must be familiar with multiple species, and their training emphasizes comparative medicine. Veterinarians are competent in preventive medicine, population health, parasitology, zoonoses, and epidemiology, which serve them well for careers in public health.”

L. J. King. Veterinary Medicine and Public Health at CDC. MMWR 2005;55(Sup02); 7-9.

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Veterinary Public Health

- Veterinary Public Health is “the sum of all contributions to the complete physical, mental and social well-being of humans through an understanding and application of veterinary science.”

World Health Organization

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Q: What Image of the Veterinary Public Health Do You Get From Dr. James Steele’s article “The history of public health and veterinary public service?”

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The Public Health System

- Extensive network of stakeholders and players in the public and private sectors
  - Federal, state and local health departments
  - Business
  - Academia, including medical, public health and veterinary medical schools
  - Practitioners
  - Media
  - Many more

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Public Health Frameworks

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37. What is the Focus of Public Health Efforts?

What is the Focus of Public Health Efforts?

- Public/population health is concerned with prevention, not treatment

38. McGinnis and Foege

Q: What Does McGinnis and Foege’s “Actual Causes of Death in the United States” tell us about prevention?
39. Significance of MMWR article

Q: What is the significance of the MMWR article “Ten great public health achievements – United States, 1900-1999?”

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40. Significance of JAVMA article

Q: What is the significance of the JAVMA article “Ten great veterinary public health/preventive medicine achievements in the United States, 1901 to 2000?”

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41. Q: Compare the two “Ten Great” articles.

Q: Compare the two “Ten Great” articles.

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42. What Does Public Health Do?

What Does Public Health Do?

• 1988: Core functions of public health
  – Assessment, policy development, assurance
• 1994: Ten Essential Public Health Services

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10 Essential Public Health Services

1. **Monitor** health status to identify and solve community health problems.
2. **Diagnose and investigate** health problems and health hazards in the community.
3. **Inform, educate, and empower** people about health issues.
4. **Mobilize** community partnerships and action to identify and solve health problems.
5. **Develop policies and plans** that support individual and community health efforts.

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10 Essential Public Health Services, cont.

6. **Enforce** laws and regulations that protect health and ensure safety.
7. **Link** people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. **Assure** competent public and personal health care workforce.
9. **Evaluate** effectiveness, accessibility, and quality of personal and population-based health services.
10. **Research** for new insights and innovative solutions to health problems.

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45. What Does Public Health Hope to Accomplish?

What Does Public Health Hope to Accomplish?

• Healthy People 2010: an agenda for the nation
  – 2 overriding objectives
  – 28 focus areas
  – 467 objectives
  – 10 leading health indicators

Source: http://www.healthypeople.gov

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46. HP 2010: Overarching Objectives

HP 2010: Overarching Objectives

• Increase number and quality of years of healthy life
• Decrease disparities

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HP 2010: Focus Areas

- Access to Quality Health Services
- Arthritis/osteoporosis/chronic back conditions
- Cancer
- Chronic kidney disease
- Diabetes
- Disability and secondary conditions
- Environmental Health
- Family Planning
- Food Safety
- Health Communication

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HP 2010: Focus Areas

- Heart disease and stroke
- HIV
- Immunization and infectious diseases
- Injury and violence prevention
- Maternal, infant and child health
- Medical Product Safety
- Mental Health and mental disorders
- Nutrition and overweight
- Occupational safety and health

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HP 2010: Focus Areas

- Oral health
- Physical activity and fitness
- Public health infrastructure
- Respiratory disease
- Sexually transmitted diseases
- Substance abuse
- Tobacco use
- Vision and hearing

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Do veterinarians have a role to play in the HP 2010 agenda?...

Q: Do veterinarians have a role to play in the HP 2010 agenda?

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Focus Area 10: Food Safety

- Objective 10-1: Reduce infections caused by key foodborne pathogens
  - Target and baseline:
    - 10-1a. Campylobacter species from 24.6 cases/100,000 people in 1997 to 12.3 cases/100,000 people in 2010
    - ...
    - 10-1g. Congenital Toxoplasma gondii (developmental)

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A Punch List for Changing Veterinary Medicine's Public Image in the 21st Century

- "Of approximately 1,400 conference attendees...of Healthy People 2010...only six were veterinarians. Nevertheless, other health care professionals challenged those veterinarians in attendance with the question 'What are you (veterinarians) doing here?' and with the statement 'I thought veterinarians treated animals. I didn’t know they really had a role in public health.'"

Hendrix CM et al. JAVMA 2006;228(4):506-10

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A Punch List

A Punch List for Changing Veterinary Medicine's Public Image in the 21st Century

- “If veterinary medicine is to thrive in the 21st century, veterinarians must work to alter the public perception of what veterinarians do and the ways veterinary medicine can be used to promote human health and prevent disease.”
- “In that letter [a 1994 letter to JAVMA], Drs. Nusbaum and Finnegan raised the provocative question, ‘Is veterinary medicine still a member of the health professions?'”

Hendrix CM et al. JAVMA 2006;228(4):506-10

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A Punch List

A Punch List for Changing Veterinary Medicine's Public Image in the 21st Century

“In solving these public perception issues, veterinarians must reach out, not wait to be asked or recognized by our health care professional counterparts.”

Hendrix CM et al. JAVMA 2006;228(4):506-10

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55. Organization of the Public Sector Public Health System

Organization of the Public Sector Public Health System

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56. Government of the US

Government of the US

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57. Government of the US

**Government of the US**

Executive Branch

- Dept. of Health and Human Services (DHHS)
- Dept. of Agriculture (USDA)
- Dept. of Homeland Security (DHS)
- Dept. of The Interior (DOI)

Also Dept. of Commerce (DOC), Dept. of Energy (DOE),...

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58. Government of the US

**Government of the US**

Executive Branch

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- Dept. of Homeland Security (DHS)
- Dept. of The Interior (DOI)

Also Dept. of Commerce (DOC), Dept. of Energy (DOE),...

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Department of Health and Human Services (DHHS)

Enhances the health and well-being of Americans by providing for effective health and human services and by fostering sound, sustained advances in the sciences underlying medicine, public health, and social services.

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DHHS Goals

1. Transform the Healthcare System
2. Secure the Homeland
3. Modernize Medicare and Medicaid
4. Advance medical research
5. Protect life, family and human dignity
6. Improve the human condition around the world

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61. DHHS Organization

DHHS Organization

- Major Divisions
  - Centers for Disease Control and Prevention (CDC)
  - Agency for Toxic Substances and Disease Registry (ATSDR)
  - Food and Drug Administration (FDA)
  - National Institutes of Health (NIH)
  - Center for Medicaid and Medicare Services (CMS)
  - Health Resources Services Administration (HRSA)
  - AHRQ, ...

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62. Centers for Disease Control and Prevention (CDC)

Centers for Disease Control and Prevention (CDC)

Promotes health and quality of life by preventing and controlling disease, injury and disability

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63. CDC Goals

CDC Goals

1. Prepare for Pandemic Influenza
2. Infectious Diseases
3. Global Health
4. Terrorism
5. Health Promotion
6. Health Information and Service
7. Environmental Health and Injury Prevention and Control

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64. CDC Coordinating Centers

CDC Coordinating Centers

• Environmental Health and Injury Control
• Health Information and Services
• Health Promotion
• Infectious Diseases
• Global Health
• Terrorism Preparedness and Emergency Response
• National Institute of Occupational Safety and Health (NIOSH)

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Food and Drug Administration (FDA)

Protects the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics, and products that emit radiation. Advances the public health by helping to speed innovations that make medicines and foods more effective, safer, and more affordable; and helping the public get the accurate, science-based information they need to use information to use medicines and foods to improve health.

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FDA Goals

1. Protect nation against Influenza Pandemic
2. Ensure the Safety and Security of Food Supply
3. Safer, More Effective Human Drugs and Biologics

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FDA Organization

- Offices
  - Science and Health Coordination
  - International Activities
  - Policy and Planning
  - Regulatory Affairs
  - Crisis Management
  - Regulatory Affairs

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FDA Organization

- Centers
  - Food Safety and Applied Nutrition
  - Drug Evaluation and Research
  - Veterinary Medicine
  - Devices and Radiological Health
  - Toxicological Research
  - Biologics Evaluation and Research
  - ...

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National Institutes of Health (NIH)

Uncovers new knowledge that will lead to better health for everyone

NIH Research Priorities for 2007

1. Genes, environment and health
2. Biodefense
3. Pandemic Influenza
4. Roadmap for Medical Research
5. Clinical Research Translation

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USDA

We provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management.

(c) 2007, Joann M. Lindenmayer, D.V.M., M.P.H.

USDA Goals

- Enhance international competitiveness of American agriculture
- Enhance the competitiveness and sustainability of rural farm economics
- Support increased economic opportunities and improved quality of life
- Enhance protection and safety of the Nation’s agriculture and food supply
- Improve the Nation’s health and nutrition
- Protect and enhance the Nation’s natural resource base and environment

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73. USDA Organization

USDA Organization

- Agricultural Marketing Service
- Agricultural Research Service
- APHIS
- Center for Nutrition Policy and Promotion
- Cooperative State Research, Education and Extension Service
- Economic Research Service
- Farm Service Agency
- Food and Nutrition Service
- FSIS
- Foreign Agricultural Service
- Forest Service
- Grain Inspection, Packers and Stockyard Administration
- National Agricultural Library
- National Agricultural Statistics Service
- Natural Resources Conservation Service
- Risk Management Agency
- Rural Development

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74. Department of Homeland Security

Department of Homeland Security

We will lead the unified national effort to secure America. We will prevent and deter terrorist attacks and protect against and respond to threats and hazards to the nation. We will ensure safe and secure borders, welcome lawful immigrants and visitors, and promote the free flow of commerce.

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DHS Goals

- **Awareness:** Identify and understand threats, assess vulnerabilities, determine potential impacts and disseminate timely information to our homeland security partners and the American public.
- **Prevention:** Detect, deter and mitigate threats to our homeland.
- **Protection:** Safeguard our people and their freedoms, critical infrastructure, property and the economy of our Nation from acts of terrorism, natural disasters, or other emergencies.
- **Response:** Lead, manage and coordinate the national response to acts of terrorism, natural disasters, or other emergencies.

(c) 2007, Joann M. Lindenmayer, D.V.M., M.P.H.

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DHS Goals

- **Recovery:** Lead national, state, local and private sector efforts to restore services and rebuild communities after acts of terrorism, natural disasters, or other emergencies.
- **Service:** Serve the public effectively by facilitating lawful trade, travel and immigration.
- **Organizational excellence:** Value our most important resource, our people. Create a culture that promotes a common identity, innovation, mutual respect, accountability and teamwork to achieve efficiencies, effectiveness, and operational synergies.

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Department of the Interior

The mission of the Department of the Interior is to protect and provide access to our Nation’s natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

DOI Goals

- Resource protection: protect the Nation’s natural, cultural and heritage resources
- Resource use: Manage resources to promote responsible use and sustain a dynamic economy
- Recreation: provide recreation opportunities for America
- Serving communities: safeguard lives, property and assets, advance scientific knowledge and improve the quality of life for communities we serve
- Management excellence: manage the Department to be highly skilled, accountable, modern and functionally integrated, citizen-centered and result-oriented
79. Public Health at the State and Local Level

Public Health at the State and Local Level

- State (ASTHO, CSTE, NAPHLH)
  - 50 state health departments
  - 8 territorial health departments
- 3000+ local (town, county) health departments (NACCHO)

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80. Percent Composition of Budget* for Executive Departments

Percent Composition of Budget* for Executive Departments

Proposed Budget: $1,795,347,000,000

*President's Proposed Budget, 2007
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81. Composition of DHHS Budget*

Composition of DHHS Budget*

![Pie chart showing the composition of DHHS budget]

Proposed Budget: $697,928,000,000

*President’s Proposed Budget, 2007
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82. Percent Composition of DHHS Budget* by Division

Percent Composition of DHHS Budget* by Division

![Bar chart showing the percent composition of DHHS budget by division]

*President’s Proposed Budget, 2007
(c) 2007, Joann M. Lindenmayer, D.V.M., M.P.H.
83. **Percent Composition of the CDC Budget**

**Percent Composition of the CDC Budget**

![Graph showing the percent composition of the CDC Budget]

*Proposed Budget: $8,410,000,000*

*President’s Proposed Budget, 2007*

(c) 2007, JoAnn M. Lindenmayer, D.V.M., M.P.H.

84. **Percent Composition of the FDA Budget**

**Percent Composition of the FDA Budget**

![Graph showing the percent composition of the FDA Budget]

*Proposed Budget: $1,947,999,999*

*President’s Proposed Budget, 2007*

(c) 2007, JoAnn M. Lindenmayer, D.V.M., M.P.H.
85. Percent Composition of the NIH Budget

Percent Composition of the NIH Budget

![Pie chart showing the percent composition of the NIH budget.]

Proposed Budget: $28,587,000,000

*President's Proposed Budget, 2007

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86. Health care money on prevention

Of every dollar spent on health care in the United States, 97 cents is spent for treatment, and only 3 cents is spent on prevention.

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87. Percent Composition of the USDA Budget*

**Percent Composition of the USDA Budget***

![Bar chart showing the percent composition of the USDA budget](chart)

**Proposed Budget: $88,000,000,000**

*President's Proposed Budget, 2007
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88. Summarize our national commitment to prevention

**Q:** Summarize our national commitment to prevention

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Summary

• DHHS gets ~40% of the U.S. budget allotted to Executive Departments, rivaled only by the Dept. of Defense
• Of the $700B DHHS budget, ~15% is discretionary (not “entitlement”)
  – ~85% for Medicare and Medicaid
• Of the remaining DHHS Divisions, NIH gets the most (~4%); CDC and FDA together get ~1%

Summary (continued)

• ~30% of the FDA’s $2B budget is allocated to food, animal drugs and feed
• ~30% of CDC’s $9B budget is allocated to bioterrorism, global health and pandemic influenza planning and response
• < 1% of the USDA budget is directed to food safety
91. Veterinarians in the Public Health System

Veterinarians in the Public Health System

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92. Veterinarians in the DHHS Workforce

Veterinarians in the DHHS Workforce

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93. State Public Health Veterinarians, 2004

State Public Health Veterinarians, 2004

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94. Veterinarians in International Institutions, 2005

Veterinarians in International Institutions, 2005

- World Bank: 2
- Food and Agriculture Organization of the United Nations: 15
- WHO: ?

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95. Why are there so few veterinarians in the public health system...

Q: Why are there so few veterinarians in the public health system?

96. Veterinary medicine and the lifeboat test

Veterinary medicine and the lifeboat test:
A perspective on the social relevance of the veterinary profession in the 21st century

Leighton, FA. Canadian Veterinary Journal 2004;45:259-263.
97. The Lifeboat Test

The Lifeboat Test


Source: http://usinfo.state.gov

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98. What’s your opinion of the “Lifeboat” article?

Q: What’s your opinion of the “Lifeboat” article?
Veterinary Public Health Workforce Expansion Act of 2007

$300,000,000
in FY 2007

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Veterinary Public Health Workforce Expansion Act of 2007

$1,264,000,000
For 9 years thereafter

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Summary

- There is little understanding of what “Public Health” means
- There is disagreement among veterinarians and about what constitutes public health
- Much of the public health work conducted by veterinarians is not acknowledged by medical or public health professionals

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