

2010 International Symposium on Safe Medicine

October 11, 2010

Investigation and Education:

**A Medical School and Health Science Center's
Role in Addressing the
Safe Disposal of Medication**

Marc B. Hahn, DO

Senior Vice President for Health
Affairs and Dean

University of New England
College of Osteopathic Medicine

Investigation and Education

- **Objectives:**
 - To understand the scope of the drug diversion and disposal problems in the U.S.
 - To understand that there is a dearth of information on the environmental impact of various classes of prescription medication.
 - To understand how should medical and other health related schools identify the scope of the problem and to recommend solutions.

University of New England



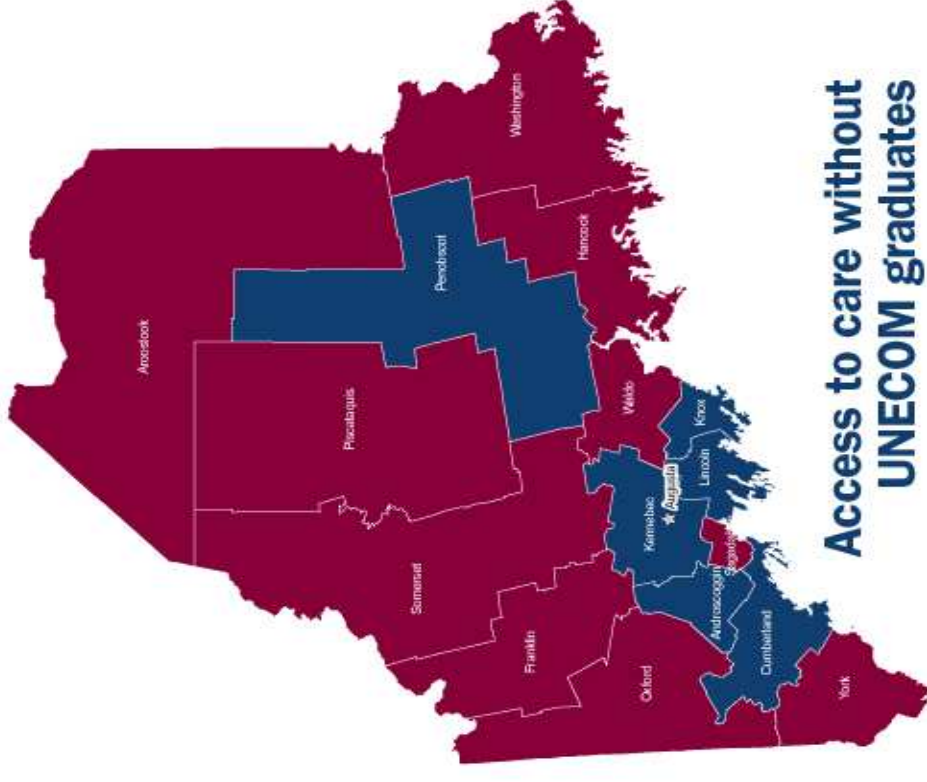
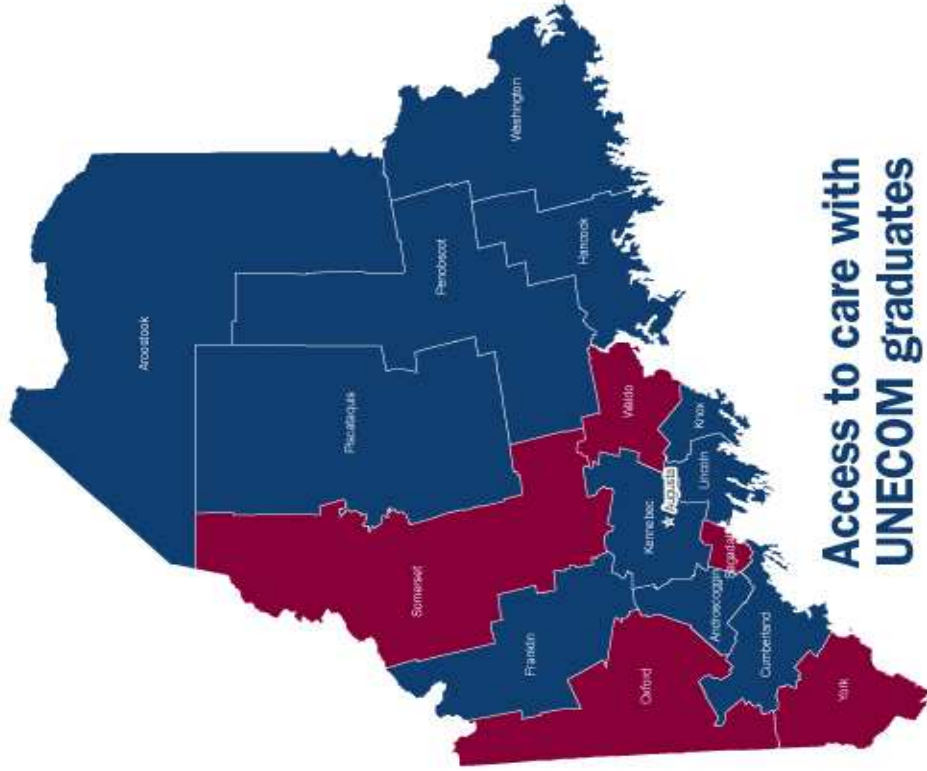
University of New England

- College of Arts and Sciences
 - Marine Science
 - Center for Land-Sea Interaction
- Westbrook College of Health Professions
 - College of Pharmacy
 - College of Graduate Studies
 - Public Health program
- Proposed College of Dental Medicine
- College of Osteopathic Medicine

UNE's Impact on Maine

- Current growth health sciences university.
 - New College of Pharmacy.
 - Planned College of Dental Medicine.
 - Economic impact to our state:
 - **>\$500,000/year.**
- Educates more health care professionals than any institution in Maine or the world.
 - >900 graduates a year.
 - 10% of physicians; 15% of PCP; and >25% of rural doctors in Maine.

UNE College of Osteopathic Medicine Impact on Maine's Access to Primary Care Physicians



Counties below the state mean for primary care physicians

Counties at or above the state mean for primary care physicians

Per 100,000 population

Scope of the Problem

- **There's a lot of 'pills' around...**
 - Prescriptions filled per year: 3,679,671,222
 - Compliance:
 - As low as 20%-decreasing over time, and with multiple medications...
 - PhRMA estimate of 3% of all medications are not used.
 - Other studies reveal much higher numbers.
 - 82% of antibiotics
 - 50% of antidepressants
 - 50% of beta-blockers
 - 20% of pain meds



Scope of the Problem

- **Diversion of Controlled Substances is a crisis.**
 - Passage of the Secure and Responsible Drug Disposal Act of 2010.
 - >15 million controlled prescription drug abusers.
 - Exceeds all combined Schedule I drug abusers:
 - Cocaine = 6 million
 - Hallucinogens = 4 million
 - Inhalants = 2 million
 - Heroin = 300,000



Scope of the Problem

- **Environmental impact.**
 - Low levels of multiple substances.
- **Antibiotics**
- **SSRIs**
- **Endocrine disruptors**
 - Industrial chemicals, pesticides, herbicides.
 - Estrogens, testosterone.



- **Agricultural use medications.**

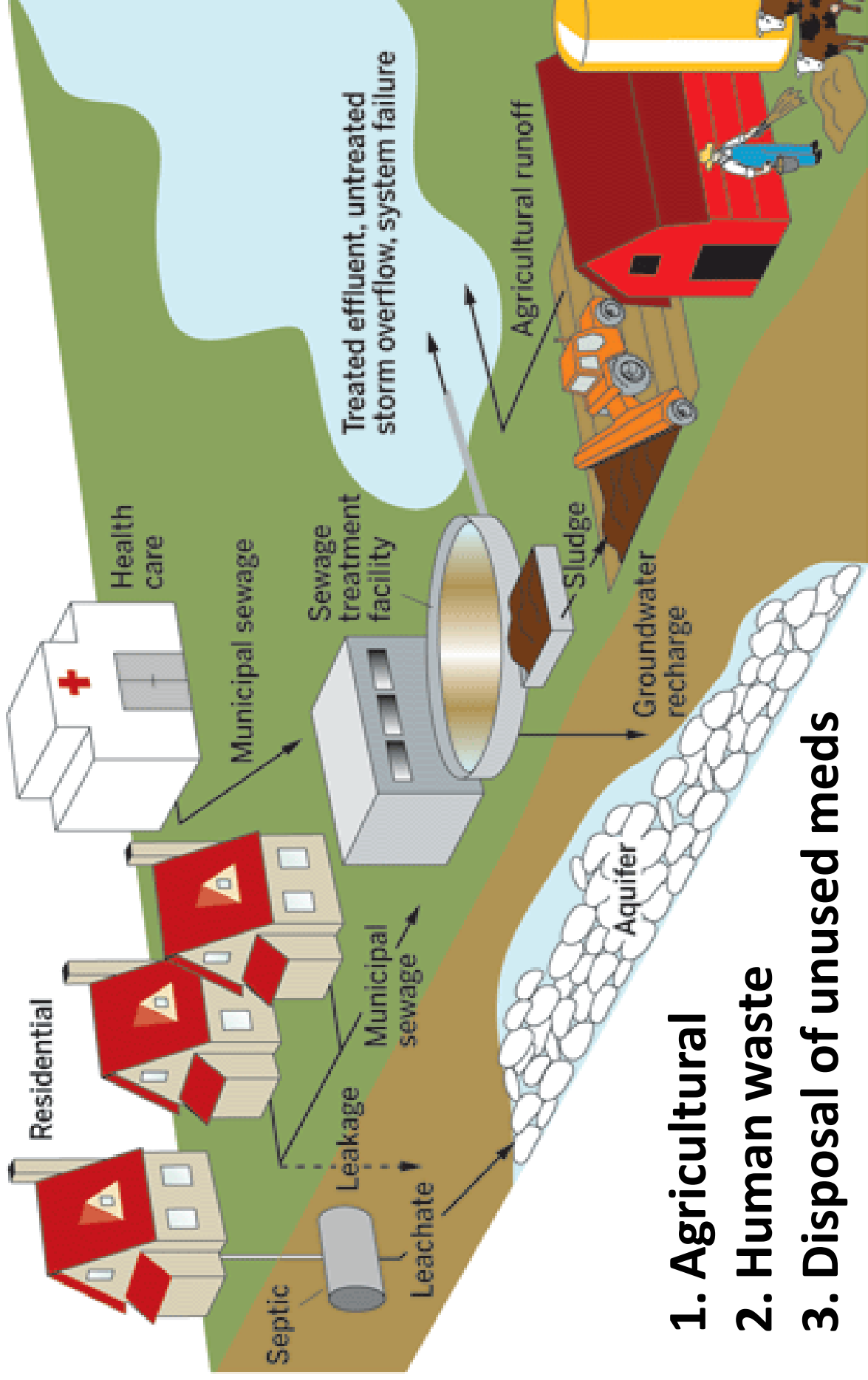
Scope of the Problem

- **Environmental impact.**
 - Disposal of Opioids
 - FDA recommendations to ‘flush’.
 - Passage of the Secure and Responsible Drug Disposal Act of 2010.
 - Opium Poppy cultivation has occurred for 5,000 years.

–Alkaloids leached into the watershed.



Sources of Medications Entering Environment



1. Agricultural
2. Human waste
3. Disposal of unused meds

The Problem of Unused Medications

- Ever increasing number of prescriptions.
- Low compliance.
- ‘Stockpiles’ in homes.
- Abuse and poisoning is a crisis.
- Unused medications are often ‘flushed’.
- Increasing levels are seen in the environment.
- What is the safest means of disposal?
 - Incineration?

Possible Research Initiatives

- Identify medications that are unused
 - Class; # of pills; pt demographics; population demographics.
- Develop population based programs
 - Improved compliance (ie. Health care concierge, co-pay differential, pharmacist f/u of pt, etc.).
- Patient and provider education.
- More frequent and specific sewer assays.
- Identification of specific land-sea interactions.

Questions>>>Recommendations

- Define Scope?
 - Human disposal of unwanted meds
 - Human excretion
 - Agricultural and animal waste
- Impact?
 - Environmental
 - Abuse
- Solutions?
 - Cost
 - Is there a safe means of disposal?