EDUCATIONAL POLICY COUNCIL

Transformation Task Force 1 - Final Report:

Integrating Medicine and Public Health:
Developing a UW School of Medicine and Public Health Curriculum Model

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INTRODUCTION:

In November 2006, Task Force 1 was charged to provide recommendations for integrating public health into the curriculum of the UW School of Medicine and Public Health. Our Task Force was given the goal to develop an 8 semester curriculum that will include new content in public health that will distinguish graduating UWSMPH medical student graduates as having a core foundation in public health principles that will enable them to improve the health of patients and to promote the health of populations.

The **Guiding Questions** given to us by the school were:

- What education and experiences do future physicians need to be highly knowledgeable in public health?

- What do we envision for the future of our graduates trained in this rich and unique environment?
- What is our vision for this model curriculum? How will this be integrated over 8 semesters, and how will this change our current curriculum design and content?

As a result of our task force deliberations, we have elected to integrate public health into the Medical School curriculum through evidence based approaches to clinical prevention and public health. It is vital to ask: "Why should we include public health in the curriculum and what should every medical student and future practicing physician know about public health?" A solid foundation in public health is part of the social contract of our academic health center: to prepare graduates who will promote and protect the health of the public.

We believe that the rationale for ensuring that our students achieve education in the principles of Public Health is summarized in this statement: "*Although we tolerate many inequalities in our society, the great inequalities in health seriously undermine our claim to be a just society. Health is of fundamental moral importance because it protects our opportunity to pursue life goals, and equal opportunity is a core value in American society. Health care, particularly the treatment of disease, has been the traditional focus of medical education and is an important but relatively minor contributor to health. Far more important factors affect the health of our citizens, such as behavior, environmental factors, and poverty. And even traditional medical care is inaccessible to tens of millions of Americans, due to financial, cultural, and other barriers. (Ref: Brock and Daniels).*

The UWSMPH has changed not just its name, but its mission, to ensure that our graduates are educated in these larger systemic issues of public health.

BACKGROUND:

The Task Force on Integrating Medicine and Public Health undertook a review of the current curriculum of the UW School of Medicine and Public Health and also surveyed similar offerings at other US Medical Schools. In reviewing the UW curriculum, the Task Force found several current offerings that, while meritorious in many ways, fall short of expected core competencies for introducing medical students to concepts and competencies in public health.

The Committee reviewed the existing curriculum, courses where public health topics are likely taught, and asked that an inventory of current content be accomplished before a final report was written. The Task Force consulted colleagues on and off campus, including Dr. Lloyd Novick when he visited our medical school and identified a model curriculum developed by the national Association of Teachers of Preventive Medicine.

Approximately 20 years ago, an inventory of knowledge and skills relating to disease prevention and health promotion was crafted under the leadership of ATPM to provide a comprehensive medical education curriculum or template to be shared across the health professions. While this report was rarely utilized, it provided the foundation for the 2000 ATPM recommendations and serves as the framework for the Curriculum we propose in this report. We recommend that we use this curriculum as our framework, including the listed content areas, and the experiential, case-based curriculum published by ATPM in 2003.

The committee recognized the critical importance of providing our students with an understanding of the continuum of determinants of health from the basic sciences to clinical medicine and public health; from the molecular to the organ, individual, and population levels. We recognize that it is necessary to bridge the gap between medicine (which is focused on the individual, disease, and treatment) and Public Health (which is focused on populations,

prevention, and health). The SMPH can provide examples, education, and experience that bridge the gaps between medicine and public health throughout the curriculum.

PROBLEMS IN THE CURRENT CURRICULUM:

The traditional medical school approach emphasizes individual doctor-patient encounters focused on diagnosis and treatment of diseases. The Task Force identified aspects of the curriculum that are pertinent to public health, but generally felt that there was no theme or cohesive coordination of this topical information other than the introductory population health and epidemiology course taught by Dr. Nieto and others from Population Health. The committee strongly endorsed the importance of a stand-alone course in public health, to reinforce the importance of the overall topic and to introduce necessary basic knowledge, skills, and beliefs to foster appreciation for the importance of public health among medical students. In addition, the Task Force felt that there needs to be integration of public health content and competencies throughout the four-year medical school curriculum. Currently, most offerings for knowledge or competencies identified at any point in the current medical school curriculum are offered only in the first 2 years of school.

Why introduce content and competencies in public health into the curriculum at this time? The answers to initiate the curricular changes proposed are the many reasons for the name change to the School of Medicine and Public Health. Most compelling are the kind of health issues confronting our nation which have not been effectively addressed by traditional medical school curricula. For example, the current national epidemic in obesity has catapulted the Robert Wood Johnson Foundation into massive focused efforts to reverse this problem. The Institute of Medicine has issued several position papers documenting significant shortcomings in prevention, patient safety and quality of care, calling for fundamental change and what and how all health profession students are taught.

We have an outstanding opportunity to introduce content and competencies in clinical preventive medicine and public health to permit the next generation of physicians to be effective at reducing risk and chronic diseases in communities, not just in clinics and hospitals. The committee strongly supports that these essential domains must be included in depth for every student graduating with an M.D. degree:

- Epidemiology, biostatistics, evidence-base
- Ethics, humanism, professionalism, and social justice
- Clinical prevention, health promotion, and health maintenance
- Health systems, health policy and health financing
- Community-based care: cultural competency, community and global health

Our Task Force addressed this task by taking a broad look at the current and proposed curriculum in public health for medical students. Our Task Force recommended we adopt the following Mission Statement to describe our recommendations for school:

MISSION STATEMENT: to develop physicians who are well prepared to serve individuals and the public by promoting health, preventing and treating disease, and improving patient outcomes through education and research.

RECOMMENDED SOLUTIONS:

The Task Force specifically recommends the following to address the goals of transformation:

1. **An Integrated Curriculum in Clinical Prevention and Public Health.** Public health content should be integrated throughout all four years of Medical School (see end of report). It will be important to introduce to students the concept of caring for

populations and thinking about their role in the community beyond interactions between an individual patients and doctors. The Task Force recommends that students be introduced to the concept that physicians have two levels of responsibility: the traditional role of the physician as a healer for individuals; and their role as an advocate for promoting the health of communities. Each course could include content that relates to public health. For example, both the infection and immunity and genetics courses are excellent examples that address both responsibilities, but often do so indirectly. We recommend adoption of the curriculum identified by the American Teachers of Preventive Medicine (see references) with the addition of ethics, humanism and cultural competency (described in #10 below).

2. **Choose a "Champion – Leader" for the New Curriculum and Create a Clinical Prevention and Public Health Curriculum Oversight Committee.** It is vital for this curriculum that a highly qualified educator with a broad knowledge of public health and clinical prevention is chosen to lead the efforts to develop a comprehensive, integrated four-year curriculum. A Public Health and Clinical Prevention Curriculum Committee should be charged with overseeing this curriculum, which may have independent curricular time, but also the ability to interweave or introduce public health topics into other curricular modules and during clinical clerkships. This committee must have an in-depth understanding of the overall curriculum and relate to the IME group to facilitate parceling curricular content and competencies into other parts of the curriculum. The IME group should work with the new course committee to identify opportunities for interweaving public health content and competencies throughout the four-year curriculum.

3. **Start The First Day of Medical School.** The Task Force recommends that as part of the recruitment and initial orientation of medical students that they be informed of their roles as physicians and advocates for public health. This may take the form of an orientation or clinical case studies, etc. (see below for examples) A powerful way to orient students would be to offer a "*Wisconsin Idea Health Tour*" at the initiation of medical school for all students, which will introduce students to regional leaders, campuses, rural areas, a prison, inner city Milwaukee, community health centers, and other sites vital to public health.

4. **Health Promotion, Health Maintenance and Clinical Prevention as Core Competencies.** It is equally important to develop clinical prevention, health promotion and public health topics that can be reinforced in basic education and clinical clerkships. Reinforcing the importance of clinical prevention and public health in all clinical rotations will provide a consistent message to students that thinking from a broader perspective is an essential component of every physician's clinical responsibility.

5. **Base New Curriculum on the ATPM Core Curriculum.** Curricular content should be drawn from the existing framework developed by the Association of Teachers of Preventive Medicine. The Task Force recommends that existing curricula, assessment techniques and other educational tools be identified and imported from other institutions whenever possible and appropriate.

6. **Expand Course in Population Health and Epidemiology.** Students need to have an introduction to public health beyond the basic introduction to methods, statistics and epidemiology. Students could have a comprehensive introduction to public health which stimulates student interest in public health concepts and practice, and the course could

be co-taught by a faculty in Population Health and clinical prevention. This could either be integrated into the current first year course, or be a stand-alone course. The committee felt that students should be introduced early into the true scope of public health to create awareness and to stimulate interest in public health among all students in public health. The course can introduce core concepts such as health disparities, health promotion, evidence-based practices, global health, ethics, etc.

7. **Introduce Faculty Colloquia in Public Health.** Bring in national experts on a regular basis to the school to share ideas for curriculum, education, experience, research and practice. Share ideas from other schools and centers.

8. **Three Levels of Public Health Education and Experience.** The Task Force recommends three levels of experience:

   - **Core level**: For all students, to include the minimal competencies identified in the ATPM curriculum
   - **Intermediate level**: For those students who have additional interests in Public Health / Public Health/Community Health, in the form of electives and other experiences such as LOCUS or a certificate in public health. These students could graduate with distinction or Honors in this area,
   - **Advanced level**: For those students who declare a strong academic interest in Public Health and who wish to obtain an MPH or PhD in Population Health in addition to their M.D.

9. **Create Community Learning Experiences**. The Task Force recommends that novel formats be developed for introduction of curricular content that helps portray the

relationship between traditional allopathic medicine and the broader role of the physician in the community, and the arena of Public / Population Health. Based on educational theory and the experience in other medical schools, it is vital for students to have experience in settings where public health is practiced. This includes a wide variety of settings, including the State Division of Public Health, county health departments, community health centers, and more. AHEC could develop and support these experiences.

10. **Integrate Ethics, Humanism, and Cultural Competency Into the Proposed Curriculum**. Beyond the 4 core areas- Evidence Base of Practice, Clinical Prevention and Health Promotion, Health Systems and Health Policy, and Community Aspects of Practice- the Task Force recommends an extra dimension should be developed to address the areas of Ethics, Professionalism, and Humanism. This could effectively be interwoven into course content through the use of case Conferences illustrating both the core concepts and their ethical or other implications. See Appendix for example case Conferences (use Norm Fost's examples as Appendix)

11. **Clinical and Public Health Presentation Conferences**. We strongly recommend the development of Clinical and Public Health Presentation Conferences which can draw on several curricular content areas simultaneously. These could occur during every module as defined in the new curriculum architecture and be presented on Friday afternoons, or during the integrating weeks of the new curriculum, allowing all students to attend. We suggest that they be multidisciplinary conferences with faculty from Public health, clinical medicine, ethics, and others who can discuss the multi-dimensions of medical problems. Among the cases that could be developed include current topics such as the HPV vaccine and the current public health, ethical, and other issues contained in this topic.

For example, students on the trauma or burn service could be introduced to public health issues such as the role of immunizations in public health, etc. Such topics could change annually to reflect current controversial topics or issues of current importance to public health.

Examples of such conferences could include important, current topics such as:

a. The influence of pharmaceutical companies on health care costs and health care policy (e.g., HPV vaccine, direct to consumer advertising, influence on CME, etc).
b. Legislation on health – e.g. banning trans-fats, banning smoking in public places, mandating alcoholism treatment, etc.
c. State mandating Body Mass Index report cards from schools
d. Immunization refusal or care refusal by parents
e. Student with an sexually transmitted disease – epidemiology, risk and approach
f. Physicians promoting procedures, etc and effects on health economics
g. Young person and suicide
h. A child with burns from hot water or a child without a safety restraint in an accident (who is liable?), etc.
i. Should we promote a motorcycle helmet law or a ban on cell phone use in cars?
j. Discuss patients with chronic illness and determinants, such as alcoholism, drug use, chronic kidney disease, congestive heart failure, obesity and diabetes

Similarly, these types of conferences could be integrated into clinical clerkships, such as students on the neurosurgical clerkship with a case presentation and discussion on the role of bicycle helmets and/ or motorcycle helmets and prevention of head injuries.

12. **Organize the Curriculum.** The Task Force wants to underscore the fact that there are already some elements of clinical prevention and public health in the current curriculum. The problem is that the current curriculum is incomplete and uncoordinated in public health education and experience. The Task Force recommends that Clinical and Public Health Presentation Conferences during year 1 be created to establish overt mechanisms to discuss issues of importance to society and that will have an impact on public health. In essence, we recommend organizing the curriculum into a coordinated, comprehensive foundation of education in public health. For example, students currently schedule sessions on vital topics to medicine and Public health, including conferences on health systems, health insurance, risk of being uninsured, health policy, and more.

13. **Consider a Capstone Project for All Medical Students.** Other schools in the country currently require research (Duke) and other capstone projects (e.g. Yale) and these long-term projects develop competencies not available through the traditional curriculum. We would recommend that the school use a model similar to the current LOCUS model to help students develop 3 year projects that explore areas critical to health including:

- Public Health (including health policy, health services, and leadership)
- Global Health
- Research
- Clinical Care
- Service
- Ethics and Humanism

Currently, nearly all students have some experience in many of these areas during medical school, most often between the first and second years of medical school. It may be more appropriate to require all students to explore some aspect of community

service, public health, or other agencies designed to augment the traditional health care system. We suggest building on these experiences to by formalizing and supporting the process. This would enhance and expand the education students receive and is somewhat similar to the Research Honors program with more formalized training. This would require significant funding, resources and school support.

Definition of terms:

Public Health: Population-based approaches that improve the health of the public

Clinical prevention and health promotion: the clinical science of screening, counseling for behavioral change and health promotion, immunizations and chemoprevention

Evidence base of practice:

1. Healthy People 2010
2. Key Facts: Race, Ethnicity and Health - Kaiser Foundation, Jan. 2007
3. Institute of Medicine report: The Quality Chasm
4. A Case-Based Curriculum for Teaching Clinical and Population-Based Preventive Medicine. American Journal of Preventive Medicine, May 2003 (Supplement) – includes articles on Curriculum Development, Implementation and Evaluation.

References

Brock D, Daniels N. Ethical foundations of the Clinton administration's proposed health care system. JAMA 1994;271(15):1189-96.

Allan J, et al. Clinical prevention and population health: Curriculum framework for health professions. Am J Prev Med 2004;27(5):471-476.

TEMPLATE OF A MODEL CURRICULUM:

Year 1 **Year 4**

Health Promotion Health Behaviors Clinical Preventive Services

Wellness Nutrition / Exercise Science Health Systems / Policy

Introduction to Public Health / Epi. Public Health Experience

Ethics & Humanism Health Disparities Experience with Underserved /Global Health

←----------→

- *Evidence-base of practice ----------→
- *Health Promotion / Clinical Preventive Services ----------→
- *Health Systems and Health Policy ----------→
- *Community Aspects of Practice ----------→
- *Cultural Competence / Health Disparities ----------→
- *Rural / Urban Health ----------→
- * Projects in Public Health ----------→

* Integrated into coursework / experience in all 4 years

American Teachers of Preventive Medicine recommended curriculum is Appendix 1.

Examples of Evaluation

1. 100% of students receive basic public health education
2. Student scores on exams and national board examinations (subscores)
3. Student projects and experiences – 50% of students achieve public health honors
4. Student evaluations of courses / clerkships
5. Graduation questionnaires
6. Student career choices

7. Number of students getting an additional MPH, PhD in Population Health – 25% of UWSMPH students attain MPH or PhD

APPENDICES:

1. American Teachers of Preventive Medicine recommended curriculum
2. Minutes from the Task Force meetings
3. Summary of Dr. Novick's visit

Last amended: May 2, 2007

APPENDIX 1.

AMERICAN TEACHERS OF PREVENTIVE MEDICINE RECOMMENDED CURRICULUM

Framework: Process and intent

Building on the above inventory, in 2003, the Task Force developed a preliminary curriculum framework in clinical prevention and population health. Widespread web-based review and evaluation of this document were sought from academics, students, practitioners, and through the participating organizations. Consultants recommended by ASPH provided comment on the preliminary document. In March 2004, representatives from all seven clinical professions on the Task Force unanimously approved the Framework.

The Framework provides a set of components and domains that constitute a foundation for education in clinical prevention and population health. The aim is to encourage each participating clinical health profession to review its curriculum recommendations and/or requirements and consider changes compatible with the Framework.

The Framework allows considerable flexibility for each clinical health profession to determine the depth of curriculum that is recommended, the timing for teaching the material, and the method(s) for delivery. The goal is to provide general recommendations and identify content areas that may require greater emphasis. It is also the intent to point out opportunities for interprofessional education and collaboration. The Framework is designed for degree programs rather than postgraduate or residency training, although it is hoped that these programs will build upon the Framework.

The Framework should be viewed as providing the foundation for a curriculum that spans the years of clinical health professional training. The curriculum content will generally need to be incorporated in more than one module or course in a degree program. Therefore, a mechanism for integrating this curricular content is important. Integration provides the opportunity to stress the interactive or ecologic nature of the factors affecting health and the development and outcome of disease (as stressed in recent IOM reports).[17, 18] The Framework also reflects the IOM's emphasis on health policy, ethics, and global health as components of public health education.

The name "clinical prevention and population health" has been carefully chosen to include both individual- and population-oriented preventive efforts as well as the interactions between them. It is recommended that participating health professions use this title when referring to this area of the curriculum.

Framework: Content

The Framework consists of four components—evidence base of practice, clinical preventive services–health promotion, health systems and health policy, and community aspects of practice—with 19 domains. These components are recommended as a structure for organizing and monitoring curriculum, and communicating within and among disciplines. Within each component, the numbered domains are designed to outline content to reflect both individual clinical prevention and population health. The

numbered domains allow each profession to identify the content considered relevant to its educational efforts. Finally, the listed items in each domain represent examples of the types of materials a particular profession may choose to encourage or require in its curriculum.

Evidence base of practice

1. Epidemiology and biostatistics
   - Rates of disease (e.g., incidence, prevalence, case fatality)
   - Types of data (e.g., nominal, continuous, qualitative)
   - Statistical concepts (e.g., estimation [relative risk/odds ratio and number needed to treat], statistical significance/confidence intervals, adjustment for confounding variables, causation)
2. Methods for evaluating health research literature
   - Study designs (e.g., surveys, observational studies, randomized clinical trials)
   - Quality measures (e.g., validity, accuracy, reproducibility, biases)
   - Sampling and statistical power
3. Outcome measurement, including quality and costs
   - Measures of mortality (e.g., infant mortality rates, life expectancy)
   - Measures that include quality of life/utility (e.g., quality-adjusted life years)
   - Measures that include cost (e.g., cost-effectiveness, incremental cost-effectiveness)
   - Measures of quality of health care (e.g., health status disparities, health plan employer data and information set [HEDIS])
4. Health surveillance
   - Vital statistics/legal documents (e.g., birth certificates, death certificates)
   - Disease surveillance (e.g., passive surveillance [reportable disease], active surveillance for epidemics and bioterrorism)
   - Biological, social, economic, geographic, and behavioral risk factors
5. Determinants of health
   - Burden of illness (e.g., distribution of morbidity and mortality by age, gender, race, socioeconomic status, geography)
   - Contributors to morbidity and mortality (e.g., genetic, behavioral, socioeconomic, environmental, health care [access and quality])

Clinical preventive services–health promotion

1. Screening
   Approaches to testing and screening (e.g., range of normal, sensitivity, specificity, predictive value, target population)

   Criteria for successful screening (e.g., effectiveness, benefits and harms, cost, patient acceptance)

   Evidence-based recommendations

2. Counseling
   Approaches to culturally appropriate behavioral change (e.g., counseling skill training, motivation)

   Clinician–patient communication (e.g., patient participation in decision making, informed consent, risk communication, advocacy)

   Criteria for successful counseling (e.g., effectiveness, benefits and harms, cost, patient acceptance)

   Evidence-based recommendations

3. Immunization
   Approaches to vaccination (e.g., live vs dead vaccine, pre- vs post-exposure, boosters, target population, population-based immunity)

   Criteria for successful immunization (e.g., effectiveness, benefits and harms, cost, patient acceptance)

   Evidence-based recommendations

4. Chemoprevention
   Approaches to chemoprevention (e.g., pre- vs post-exposure, time limited vs long term)

   Criteria for successful chemoprevention (e.g., effectiveness, benefits and harms, cost, patient acceptance)

   Evidence-based recommendations

Health systems and health policy

1. Organization of clinical and public health systems
   Clinical health services (e.g., continuum of care—hospital, ambulatory, home, long-term care)

   Public health responsibilities (e.g., public health functions [Institute of Medicine]; ten essential services of public health)

Relationships between clinical practice and public health

2. Health services financing
   Clinical services coverage and reimbursement (e.g., Medicare, Medicaid, employment based, uninsured)

   Methods of financing of healthcare institution (e.g., hospitals, long-term care, community health centers)

   Methods of financing of public health services

   Other models (e.g., international comparisons)

3. Health workforce
   Methods of regulation of professions and health care (e.g., certification, licensure, institutional accreditation)

   Discipline-specific history, philosophy, roles, responsibilities

   Racial/ethnic workforce composition including under-represented minorities

   Relations of discipline to other healthcare professionals

   Legal and ethical responsibilities of healthcare professionals (e.g., malpractice, healthcare information privacy, confidentiality)

4. Health policy process
   Process of health policymaking (e.g., local, state, federal governments)

   Methods for participation in the policy process (e.g., advocacy, advisory processes)

   Impact of policies on health care and health outcomes including impacts on vulnerable populations

Community aspects of practice

1. Communicating and sharing health information with the public
   Methods of assessing community needs/strengths and options for intervention (e.g., community-oriented primary care)

   Media communications (e.g., strategies of using mass media, risk communication)

   Evaluation of health information (e.g., websites, mass media, patient information [including literacy level and cultural sensitivity])

2. Environmental health
   Sources, media, and routes of exposure to environmental contaminants (e.g., air, water, food)

Environmental health risk assessment and risk management (e.g., genetic, prenatal)

Environmental disease prevention focusing on susceptible populations

3. Occupational health
   Risks from employment-based exposures

   Methods for control of occupational exposures

   Exposure and prevention in healthcare settings

4. Global health issues
   Roles of international organizations

   Disease and population patterns in other countries (e.g., burden of disease, population growth, health and development)

   Effects of globalization on health (e.g., emerging and reemerging diseases/conditions)

5. Cultural dimensions of practice
   Cultural influences on clinicians' delivery of health services

   Cultural influences on individuals and communities (e.g., health status, health services, health beliefs)

   Culturally competent health care

6. Community services
   Methods of facilitating access to and partnerships for health care

   Evidence-based recommendations for community preventive services

   Public health preparedness (e.g., terrorism, natural disasters, injury prevention)

From: Allan J, et al. Clinical prevention and population health: Curriculum framework for health professions. Am J Prev Med 2004;27(5):471-476.*

*Note – The UWSMPH Task Force would add ethics and humanism to the above curriculum.