utmb Health

Public Health Program

MPH Orientation Handbook
Public Health Program
2015-2016

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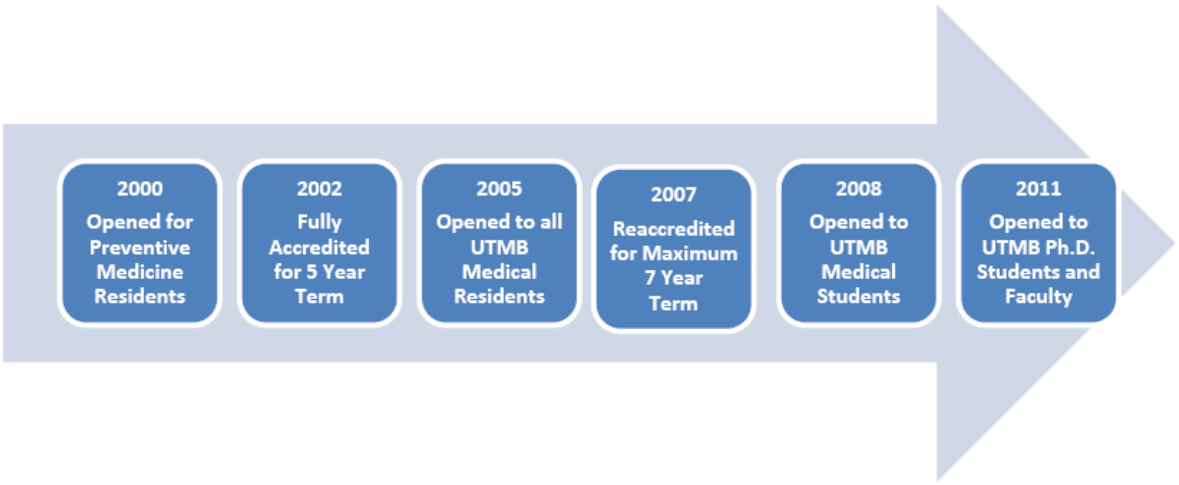
Public Health is…
what we as society do collectively to assure the conditions in which people can be healthy.

—Institute of Medicine (1988)

1. Public Health Program Description

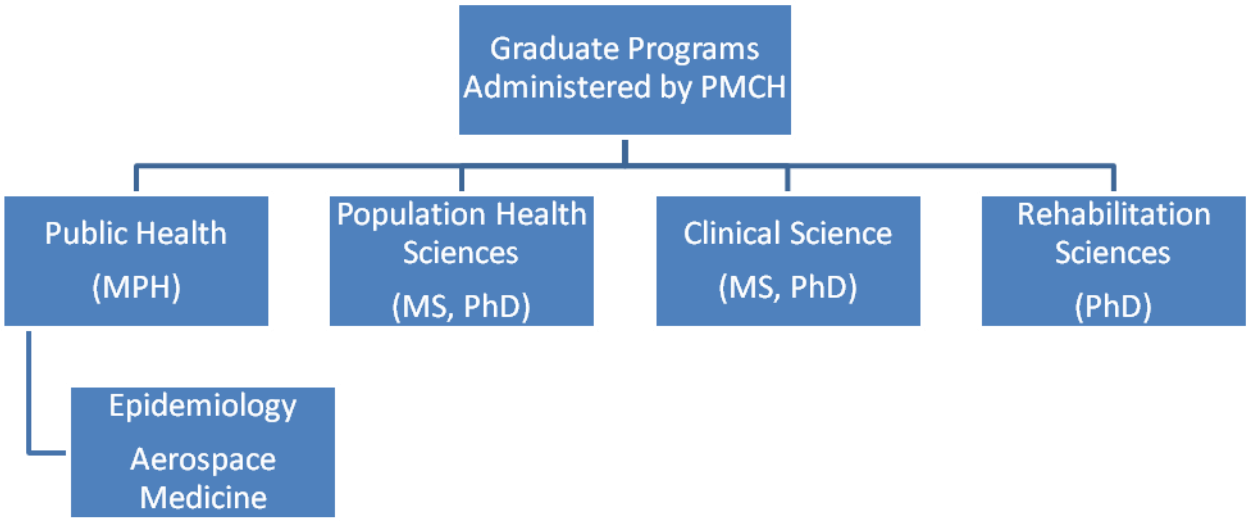
The Public Health Program at The University of Texas Medical Branch (UTMB) is administered by the Department of Preventive Medicine and Community Health (PMCH). The program was pre-accredited in 1999 and has been fully accredited since 2002 by the national accrediting body, the Council for Education on Public Health (CEPH).



The Public Health Program at UTMB offers a professional MPH degree with an Epidemiology track and an Aerospace Medicine track. All students who enroll in the program have completed, or are working toward, an MD or PhD degree. The Epidemiology track is open to UTMB doctoral students, medical students, residents, fellows and faculty. The Aerospace Medicine track is open only to Preventive Medicine residents. The Public Health Program provides this select group of students with the knowledge, skills, and values they will need to work in fields that combine preventive medicine and public health.

As of Summer 2015, 126 graduates have earned the MPH degree. Degrees from the PMCH graduate programs, including the MPH, are awarded by the UTMB Graduate School of Biomedical Sciences (GSBS). The instructional and related educational activities of the Public Health Program are supervised by the Graduate Program Director for the Public Health Program (**Christine Arcari, Ph.D., M.P.H.**). The coordination of the Public Health Program with other PMCH graduate programs and curricular tracks is directed by the Vice Chair for Education (**Kristen Peek, Ph.D.**). The leadership of PMCH and oversight of education, research and service activities is guided by the PMCH-SOM Department Chair (**Laura Rudkin, Ph.D.**).

The PMCH-GSBS Program administers four graduate degree programs: **Public Health** (Epidemiology and Aerospace Medicine Tracks)**, Population Health Sciences, Clinical Science, and Rehabilitation Sciences**.



1.1 Mission and Values

The **MISSION** of the Public Health Program at The University of Texas Medical Branch at Galveston is *to contribute to the protection and promotion of health in human populations* by:

- Preparing students to practice skillful and evidence-based preventive medicine and public health;
- Conducting and communicating research that informs the diverse fields within public health; and
- Providing interdisciplinary expertise in the service of academic, professional, and community-based public health organizations.

We work toward this mission through the development, integration, and continual improvement of activities from our rigorous instructional program, collaborative and productive research agendas, and wide-ranging service commitments.

The Public Health Program core **VALUES** are informed by UTMB values (http://intranet.utmb.edu/mission/). These are:

- *Education*. We are committed to life-long learning for our students, staff, faculty and community.
- *Innovation*. We always think of new ways to do things better.
- *Diversity.* We are committed to employ and educate a health care work force whose diversity mirrors the populations they serve.
- *Service.* We have a burning commitment to serve the health care needs of all Texans, regardless of their ability to pay.
- *Community.* We are committed to making our community a better place to live and work.

The institution's core values were reaffirmed and expanded upon by PMCH faculty members during a strategic planning process in 2005. The faculty and staff charged with developing a departmental strategic plan began the process by identifying shared values. The **PMCH consensus value statement** included:

- *Integrity.* We fulfill our duties and responsibilities in an open, honest, and ethical manner.
- *Collegiality.* We value cooperation and collaboration. We are respectful of our colleagues, co-workers, and community members.
- *Effectiveness.* We are committed to being effective, efficient and productive in our teaching, research, and service activities.
- *Responsiveness.* We are flexible and adaptable. Within our areas of expertise, we are prepared to respond to institutional and community needs as they arise.

"The Department of Preventive Medicine has been established in this university for the specific purpose of helping in the solution of medico-social problems in Texas. The doctor must be an active force in helping improve social and economic conditions in the community. For in the last analysis, the problems of preventive medicine are social problems and their final solution must be social remedies."

James Person Simonds, MD, (1913)
Dr. Simonds was the first chair of
UTMB's Department of Preventive Medicine.

1.2 Program Goals and Objectives

Our established goals and objectives guide us in our efforts to accomplish our stated mission. We have developed **broad goals and measurable objectives** for the Public Health Program and for each of its major functions: instruction, research, and service, as well as administration.

Instructional Goals and Objectives

1. Provide a rigorous, comprehensive, integrated public health curricular plan with high quality instruction.
   a. Offer courses with well defined competency-based objectives and corresponding content and assignments.
   b. Integrate core public health knowledge and skills across learning experiences.

2. Prepare students to perform the three core functions of public health—assessment, policy development, and assurance—in their chosen career settings.
   a. Require *all* public health students to demonstrate mastery of the program competencies.
   b. Require *all* public health students to practice the three functions through planned, evaluated, and coordinated capstone projects and practice experiences.

3. Provide students with practical experience in applied public health settings.
   a. Expand the number of local organizations and agencies available for practice experience placements or capstone collaborations.
   b. Formally evaluate practice experience sites, preceptors, and projects to inform improvements.

4. Train students who will engage in lifelong learning in their chosen career settings.
   a. Impart the value of lifelong learning to students.
   b. Provide public health students the skills needed to stay current on the science and practice of their specific fields.

Research Goals and Objectives

1. Conduct research with applied implications for public health practice and policy making.
   a. Increase the number and productivity of research projects with relevance to public health.

2. Conduct community-based participatory research (CBPR).
   a. Increase the number and productivity of CBPR projects.
   b. Expand the number and role of community groups collaborating on CBPR projects.

3. Provide students with opportunities to be involved in faculty research projects.
   a. Expand the number of public health students in research collaborations with faculty members.

Service Goals and Objectives

1. Provide students with multiple and varied opportunities to perform community service of public health relevance.
   a. Increase faculty-public health student joint participation in community service.
   b. Strengthen public health student involvement in the UTMB Graduate Student Organization (GSO) service projects.

2. Encourage faculty members to employ their expertise in the service of public health professional and community organizations.
   a. Increase faculty involvement in public health service activities.

3. Identify the public health related workforce development needs of area health care and public health workers.
   a. Conduct an area needs assessment regarding public health continuing education.

4. Participate in planning and delivering continuing education programs on public health topics.
   a. Facilitate faculty participation in public health related continuing education activities.

Administration Goals and Objectives

1. Expand the student base for the Public Health Program.
   a. Increase the number of MD-MPH students enrolled.
   b. Increase the number of medical residents outside of Preventive Medicine enrolled.

2. Enhance funding for Public Health Program activities.
   a. Obtain funding to assist MD-MPH students with cost of tuition and fees.
   b. Obtain funding to cover students' practice experience expenses.

3. Expand the faculty base for the Public Health Program.
   a. Involve more PMCH and UTMB faculty from various disciplines in the Public Health Program.
   b. Establish more roles for public health practitioners in the various activities of the Public Health Program.
   c. Coordinate with other programs and departments to fund new faculty positions in public health fields.

4. Enhance demographic diversity of the Public Health Program.
   a. Encourage minority and female student and faculty participation in the Public Health Program.

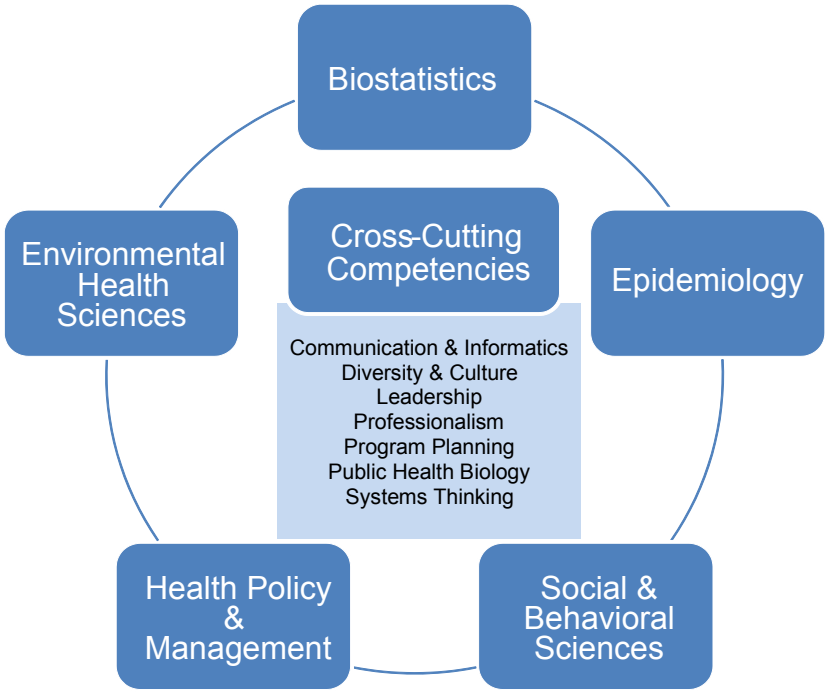
2. Student Competencies

The Public Health Program faculty members have generated and approved competencies in three domains: 1) core knowledge, 2) practice skills, and 3) professional skills. There are core public health competences for all public health students and track specific competencies for students in the Epidemiology and Aerospace Medicine Track. These guide curriculum improvement and program review by the faculty and provide students with additional focus in skills development.

The Public Health Program uses additional **competency sets** to guide program planning and evaluation and to assess student and alumni performance. (See Appendix A.) Those competency sets are the:

- Public Health Core Competencies—both discipline specific and crosscutting—proposed by the Association of Schools of Public Health (www.asph.org);
- Core Competencies for Public Health Professionals adopted by the Council on Linkages Between Academia and Public Health Practice (www.trainingfinder.org) ; and
- Core Competencies for Preventive Medicine Residents developed by the American College of Preventive Medicine (published in Am J Prev Med 1999; 16(4):367-372

The **model for the Association of Schools Public Health (ASPH) Public Health Core Competencies** is illustrated below. The five competency areas in the outer ring include the five core content areas of public health—Biostatistics, Epidemiology, Environmental Health Sciences, Health Policy and Management, and Social and Behavioral Sciences. The competency areas listed in the center box include knowledge and skills that cut across the core areas.



2.1 Core MPH Competencies

To prepare for careers in which they will contribute to the protection and promotion of population health, UTMB MPH graduates are expected to master the following competencies:

Core Knowledge

1. Describe basic concepts in biostatistics and epidemiology.
2. Calculate and interpret basic measures in biostatistics and epidemiology.
3. Describe the direct and indirect human, ecologic and safety effects of major environmental and occupational agents.
4. Identify the main components and issues in the US health care and public health systems.
5. Describe the role of program planning, budgeting, management, and evaluation in the development and operation of organizational initiatives.
6. Identify basic concepts and models from social and behavioral sciences that are used in public health research and practice.
7. Describe how social, behavioral, environmental, psychological, and biological factors contribute to specific individual and community health outcomes.

Practice Skills

8. Locate existing data sources on health status and health related resources for a specific population.
9. Apply quantitative (biostatistics and epidemiology) methods to provide a health and demographic profile of a specific population.
10. Locate and synthesize the relevant research literature on risk and protective factors for a specific public health issue.
11. Review the evidence base on program and policy approaches to a specific public health issue.
12. Identify potential stakeholders, target populations, and modifiable causal factors for a specific public health issue.
13. Recommend appropriate actions based on knowledge of the evidence base, target population, stakeholder preference, and available resources.

Professional Skills

14. Employ high ethical and professional standards in public health practice and research activities.
15. Communicate public health topics effectively to both lay and professional audiences.
16. Recognize the role of cultural and social factors in the planning and delivery of public health services and interventions.
17. Appreciate the importance of working collaboratively with diverse communities and constituencies (e.g., researchers, practitioners, agencies, and organizations).
18. Value commitment to lifelong learning and professional service.

2.2 Epidemiology Track MPH Competencies

To prepare for careers in which they will apply their epidemiologic knowledge and skills to the protection and promotion of population health, UTMB MPH graduates in the Epidemiology track are expected to master the following competencies:

Core Knowledge

1. Discuss sentinel events in the history and development of the public health profession and their relevance for practice in the field.
2. Explain the role of biology in the ecological model of population-based health.
3. Identify the role of laboratory resources in epidemiologic practice.
4. Use identified informatics tools in support of epidemiologic practice.
5. Recognize the basic principles of risk communication.

Practice Skills

6. Create an epidemiological profile for a specified population.
7. Organize and manage data from surveillance systems, surveys, and investigations.
8. Analyze data from an epidemiologic investigation or study.
9. Summarize results of epidemiologic analysis and draw conclusions.
10. Recommend evidence-based interventions and control measures in response to epidemiologic findings.
11. Plan for the collection and analysis of data to be used in evaluation of programs and interventions.
12. Provide epidemiological input into epidemiologic studies, public health programs, and community public health planning.

Professional Skills

13. Embrace a definition of public health that captures the unique characteristics of the field (e.g., population-focused, community-oriented, prevention-motivated and rooted in social justice) and how these contribute to professional practice.
14. Apply principles of good ethical/legal practice as they relate to study design and data collection, dissemination, and use.
15. Conduct investigations using languages and approaches tailored to the population.

2.3 Aerospace Track MPH Competencies

To prepare for careers in which they will contribute to health protection and promotion within specific populations exposed to hazardous environments, UTMB MPH graduates in the Aerospace Medicine concentration are expected to master the following competencies:

Core Knowledge

1. Describe federal and state regulatory programs, guidelines, and authorities that control occupational health issues.
2. Describe the genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
3. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
4. Describe patterns of disease relevant to the practice of travel medicine.
5. Identify the physiologic effects of flight and spaceflight on humans.
6. Describe how behavior alters human biology.

Practice Skills

7. Draw appropriate inferences from epidemiologic studies of astronauts, flight personnel, and passengers.
8. Develop a testable model of environmental insult.
9. Analyze inter-relationships among systems that influence the health of humans in the flight and spaceflight environments.
10. Specify approaches for assessing, preventing, and controlling environmental hazards that pose risks to human health and safety.
11. Apply appropriate methods to prevent disease or limit risk for patient populations in travel medicine.
12. Develop and apply medical care standards and programs for persons operating in hazardous environments.
13. Advise in the design of air and flight space equipment, biomedical equipment, and vehicles to promote flight safety.
14. Conduct medical aspects of mishap investigation and propose preventive measures.

Professional Skills

15. Effectively communicate concepts of risk and risk reduction in occupational settings.
16. Serve as passenger and personnel advocates to promote flight safety.

3. Curricular Plan

The curricular plan includes courses in the core disciplines of public health and topics relevant to blending the practice of preventive medicine and public health. A minimum of 42 credit hours is required to earn the MPH. **Course descriptions** are at: http://pmch.utmb.edu/education/gradprogram/gradcourselisting.aspx.

In addition to coursework, the curricular plan also incorporates integrative applied learning experiences in the form of the capstone project and the practice experience. The capstone project and practice experience provide students with two distinct opportunities to apply the knowledge and skills obtained in coursework to public health practice. The capstone and practice experience are separate requirements within the Public Health Program, but may be combined into a single larger project. Public Health faculty members guide students in identifying projects that suit the students' professional goals and personal interests.

MPH Epidemiology Track		
Course Number	**Course Title**	**Credit Hours**
Public Health Core Courses (Required)		
PHS 6347	Applied Statistical Methods	3
PHS 6330	Introduction to Epidemiology	3
PHS 6015	Foundations in Public Health	6
	SUBOTOTAL	**12**
Epidemiology Required Courses (Required)		
PHS 6333	Epidemiological Methods	3
PHS 6233	Infectious Disease Epidemiology	2
PHS 6234	Chronic Disease Epidemiology	2
PHS TBD	Injury Epidemiology	2
PHS TBD	Social Determinants of Health	2
PHS 6210	Introduction to Data Management	2
PHS 6121	Public Health Colloquium	3
	SUBOTOTAL	**16**
Additional Courses (Required)		
MEHU 6101	Ethics of Scientific Research	1
PHS 6426	Public Health Practice	4
PHS 6098	Thesis	9
	SUBTOTAL	**14**
	TOTAL DEGREE HOURS	**42**

MPH Aerospace Medicine Track		
Course No.	**Course Title**	**Credit Hours**
Public Health Core Courses (Required)		
PHS 6347	Applied Statistical Methods	3
PHS 6330	Introduction to Epidemiology	3
PHS 6015	Foundations in Public Health	6
	SUBOTOTAL	**12**
Aerospace Medicine Required Courses		
PHS 6214	Aircraft Mishap Investigation and Prevention	2
PHS 6410	Intensive Course in Tropical and Travel Medicine	4
PHS 6482	Principles of Aerospace Medicine	4
PHS 6227	Occupational Injury and Illness	2
PHS 6296	Special Topics: Stress & Health	2
PHS TBD	Public Health and Preventive Medicine	2
	SUBTOTAL	**16**
Additional Courses (Required)		
MEHU 6101	Ethics of Scientific Research	1
PHS 6426	Public Health Practice	4
PHS 6098	Thesis	9
	TOTAL	**14**
	TOTAL DEGREE HOURS	**42**

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

World Health Organization Constitution. (1946) Geneva (WHO)

4. Capstone Project

The capstone project should **address a topic of public health significance** and should contribute to the knowledge base of preventive medicine and public health. Through the project the student will demonstrate that he/she is able to integrate skills and competencies from across the curriculum to conduct evidence-based public health research. Approval of the final capstone report constitutes an assessment that the student is prepared to enter public health practice.

Requirements for completion of the capstone project include: (1) a formal written proposal, (2) a public presentation of the completed project, and (3) a final written report that meets Graduate School guidelines. The public presentation takes place as part of National Public Health Week near the end of the spring term. Students complete the written capstone report as part of the required Thesis hours in the final term of enrollment. In the UTMB Public Health Program, a wide variety of topics have been addressed in capstone projects (See Appendix B).

The capstone project provides students the opportunity to apply public health skills to a topic of practical significance. The project allows the Public Health Program to evaluate the student's performance on core public health competencies. The capstone project process also **meets requirements placed on the Public Health Program** by the UTMB Graduate School of Biomedical Sciences and the national accrediting body in public health, the Council on Education for Public Health.

The culminating experience of the Public Health Program is the completion of the capstone project including the written paper and public presentation. To maintain full accreditation from the Council on Education for Public Health, the Public Health Program must require a culminating experience.

The main **types of capstone projects** include: systematic literature reviews, research reports, program planning, and program evaluation. These formats will be described in more detail in section 4.2. Other formats are acceptable with the approval of the student's advisory committee and the program director. Examples of alternative formats include the development of population health case studies to be used in medical curriculum or creation of on-line public health teaching modules.

4.1 Capstone Committee, Proposal & Candidacy

Committee

Students are guided through the capstone project by a **three-person committee** including the student's MPH advisor (Committee Chair) from the Public Health Program, a second faculty member from the Public Health Program, and a third faculty member from a program or discipline different from that of the graduate advisor. The Public Health Program Director (Dr. Christine Arcari, Ph.D., M.P.H.) will assign each student a graduate advisor and the program director and graduate advisor will aid in the selection of the remaining capstone committee members.

Proposal

A formal written proposal is required for the capstone. According to the GSBS, the **proposal** should address the following questions:

1. *What do you intend to do?*
2. *Why is the work important?*
3. *What has been done already?*
4. *How are you going to do the work?*

The **format of the proposal** is:

1. Title Sheet – Title of the research project followed by your name and a 200 word summary of the proposed thesis/dissertation research. One page.

2. Research Plan

   A. Specific Aims or Problem Statement: State concisely and realistically what the research described in the proposal is intended to accomplish. What hypothesis is to be tested or what question is to be addressed? Do not exceed one page.

   B. Significance: Briefly sketch the background (or literature review) to your thesis/dissertation proposal, critically evaluate existing knowledge, and specifically identify the gaps which the proposal is intending to fill. State concisely the importance of the research described in the proposal by relating the specific aims to longer term objectives. Do not exceed three pages.

   C. Research Accomplishments to Date: If you have conducted any research pertinent to your thesis/dissertation proposal, briefly describe your results. Also, list relevant courses or other experiences which enhance your competence to perform the proposed research. Do not exceed four pages of written text. (Additional pages may be used for figures, graphs, tables, etc.)

D. Methods: Briefly discuss the research design and procedures to be used to accomplish the specific aims of the proposal. If any new methodology is being used, describe its advantage over existing methodology. Include the kinds of data to be gathered (when applicable) and the means by which the data will be analyzed and interpreted. The discussion should provide sufficient evidence that the specific aims are attainable. It is not necessary to include detailed methodological/technical protocols. Do not exceed ten pages.

E. Literature Cited: Cite the pertinent literature in the text and provide the complete reference list in the Literature Cited section. Each citation must include the names of all authors, the name of the book or journal, volume number, page numbers, and year of publication. Although no page limitation is specified for this part of the proposal, make every attempt to be judicious in compiling the biography. It should be relevant and current. It need not be exhaustive.

F. Supervision and Facilities: Name the person(s) proposed to be immediately responsible for supervising your thesis/dissertation research and laboratory (or other facilities) where most of your proposed research will take place. If the proposed project involves collaboration with another institution, give evidence that the collaborator (s) agrees to participate.

G. Human Subjects: Include all human research-related instruments to be used in this study, sample of subject consent form(s), and instructions to subjects as appropriate.

H. **Public Health Competencies:** Include a list of the public health competencies you plan to concentrate on doing your capstone. You may identify specific competencies from the guides included (See Appendix A) or write your own.

A **draft of the written proposal,** no more than 10 pages (excluding tables and appendices), is required. An extensive literature review is not necessary for the proposal. The format of the proposal should follow GSBS guidelines. Refer to GSBS format requirements at http://www.gsbs.utmb.edu/ETD/guidelines.htm.

Candidacy

To be admitted to candidacy you must submit your capstone proposal for approval to your Committee Chair and circulate the proposal to the remaining capstone committee members for comment. When your capstone committee has approved the proposal, **complete the GSBS paperwork for advancement to candidacy including a Gantt timeline** (See Appendix D) and submit the paperwork to Shannon Carroll along with a copy of your **final written proposal**.

The Public Health Program Director (Dr. Christine Arcari) and the Vice Chair for Education (Dr. Kristen Peek) must read and approve the proposal before forms are submitted to GSBS.

4.2 Final Report

The template for the **format of the capstone report** is found at: http://gsbs.utmb.edu/etd/ETD_Template.asp. The **content of the capstone report** and the specific chapters included varies according to the type of project.

Systematic Literature Review

A ***systematic literature review*** provides an in-depth analysis of an important public health problem, including describing the problem, evaluating causes and determinants, and proposing evidence-based solutions regarding appropriate interventions or policy or regulatory changes for prevention and control.

The ***structure*** of the systematic literature review is:

Abstract
Chapter 1 – Introduction
- Research question
- Objectives
- Rationale for the review

Chapter 2 – Background
- Epidemiologic description of the health problem (distribution and determinants)

Chapter 3 – Methods
- Search strategy
- Inclusion and exclusion criteria
- Data extraction
- Quality assessment

Chapter 4 – Results
- Search results
- Selection process
- Description of studies
- Summary of findings
- Quality assessment

Chapter 5 – Discussion
- Summary
- Public health implications
- Strengths and limitations
- Gaps in evidence
- Conclusions

Bibliography
Appendices
Biography & CV

Research Report

A ***research report*** addresses a public health related research question and involves the collection, analysis, and interpretation of data. Secondary data analyses may be conducted. Primary data collection is permissible, but is not encouraged given the time demands of the Public Health Program.

The ***structure*** of the research report is:

Abstract
Chapter 1 – Introduction

- Research question
- Specific aims
- Significance

Chapter 2 – Background and Literature Review

- Epidemiologic description of the health problem (distribution and determinants)
- Scientific background
- Limitations and gaps in existing literature
- Rationale

Chapter 3 – Data and Methods

- Study design
- Setting and study population
- Variables (outcomes, exposures, confounders) and operational definitions
- Data sources and measurement
- Analytic plan

Chapter 4 – Results

- Study population
- Descriptive data
- Outcome data
- Main results
- Other analyses

Chapter 5 – Discussion

- Summary
- Key results
- Strengths and limitations
- Interpretation
- Generalizability

Cited Literature
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Program Planning

A ***program plan*** develops a program or policy to address a specific public health problem for a specific organization or agency and involves a needs assessment, implementation and evaluation plans, and discussion of management, fiscal, and ethical factors.

The ***structure*** of the program plan is:

Abstract
Chapter 1 – Introduction
- Specific aims
- Significance

Chapter 2 – Background and Literature Review
- Epidemiologic description of the health problem (distribution and determinants)
- Scientific background and rationale
- Organization/agency description

Chapter 3 – Methods
- Needs assessment
- Program description
- Logic model

Chapter 4 – Results
- Implementation plan
- Evaluation plan

Chapter 5 – Discussion
- Expected outcomes
- Strengths and limitations
- Sustainability plan
- Recommendations

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Program Evaluation

A ***program evaluation*** involves the evaluation and/or monitoring of an existing public health program to improve public health services.

The ***structure*** of the program evaluation is:

Abstract
Chapter 1 – Introduction
- Specific aims
- Significance

Chapter 2 – Background and Literature Review
- Epidemiologic description of the health problem (distribution and determinants)
- Program description
- Evaluation framework

Chapter 3 – Methods
- Evaluation methods
- Standards and criteria
- Data sources and measurement

Chapter 4 – Results
- Evaluation findings

Chapter 5 – Discussion
- Summary
- Strengths and limitations
- Recommendations
- Resource implications
- Dissemination plan

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A **journal article accepted for publication/published in a peer-reviewed journal**, based on the capstone project, will be accepted in lieu of a final report.

Upon final approval by the capstone report by the capstone committee and the Associate Dean for Student Affairs (Dorian H. Coppenhaver, PhD), the capstone must be uploaded to the Electronic Thesis Dissertation (ETD) website. Instructions to upload the capstone to ETD are found at: http://gsbs.utmb.edu/etd/ETDSubmissionGuidelines.asp.

University policy on academic dishonesty is clear: academic dishonesty in any form is strictly prohibited. Anyone found to be cheating or helping someone else cheat will be referred directly to the Dean of Students for disciplinary action. Penalties are severe and may include dismissal from the University. The risks associated with cheating far outweigh the perceived benefits. Academic dishonesty includes citing someone else's work as your own - if you are unsure whether your planned action constitutes academic dishonesty, seek clarification from your instructor. **All capstone reports will be checked for originality using the iThenticate software**. A brief guide to avoiding plagiarism is included in the Appendix (See Appendix C).

4.3 Public Presentation

A **public presentation of the capstone report** is required for the completion of the capstone. The forum for this presentation varies and can be a poster presentation as part of the UTMB National Public Health Week Symposium (first week in April) or an oral presentation as part of the Preventive Medicine and Community Health Seminar Series. Other venues such as local, regional, state and national conferences are also acceptable. The Public Health Program Director (Dr. Christine Arcari, Ph.D. M.P.H.) and your MPH advisor will work with you to schedule the final presentation.

> Public health practice embraces all those actions that are directed to the assessment of health and disease problems in the population; the formulation of policies dealing with such problems; and the assurance of environmental, behavioral, and medical services designed to accelerate favorable health trends and reduce the unfavorable.
>
> *- Abdelmonem Affi Lester Breslow, (1994)*
> The maturing paradigm of public health

5. Practice Experience

The **practice experience** is a mentored, applied experience in a community or government agency or organization involved in public health practice. Practice experience sites, preceptors, and projects are selected to benefit the student, the host agency, and the Public Health Program. Students will receive professional mentoring, but will also complete projects that contribute to the mission of the hosting site. The practice experience is completed as part of PHS 6326 Public Health Practice Experience. It requires **160 contact hours in a public health setting**. Students write summary reports and obtain written performance evaluations from their practice preceptors.

The practice experience allows the student to be mentored by a public health professional outside of the classroom environment. The requirement provides students with real world experience and provides the program with an assessment of student performance by public health practitioners. The practice experience has been an invaluable mechanism for the Public Health Program and its faculty members and students to contribute to the broader community. As part of the CEPH accreditation requirements, public health students must complete a practice experience that utilizes practical skills.

The practice experience is a required and important part of the academic experience. The purpose of the Practice Experience is to provide students the opportunity to apply knowledge and skills developed in the classroom setting to the practice of public health in applied settings. In coordination with the Course Directors (Drs. Cooksley and Arcari), the student will select a practice site. Under the supervision of the on-site Preceptor, the student will conduct a project relating to public health practice.

5.1 Site Selection and Requirements

Site Selection

Practice experience sites are identified by the Public Health Program. The Galveston County Health District, The Jesse Tree (a nonprofit community service agency in Galveston), Frontera de Salud (a UTMB-affiliated community health clinic in Brownsville, Texas), St. Vincent's Clinic (a clinic providing indigent care), and UTMB Employee Health have been common sites available for previous practice experience. (See www.gchd.org, www.jessetree.net, www.utmb.edu/frontera, and http://www.stvhope.org/). A list of previous practice experience sites, preceptors, and projects are included in the Appendix (See Appendix E).

Students will be provided a list of practice experience sites and projects and will work with the Public Health Program Director (Dr. Christine Arcari) and Course Director (Dr. Cooksley) to select a site.

Requirements

As part of the practice experience you must submit a proposal describing the agency or organization and its mission, the proposed project activities and objectives, and the preceptor's position at the hosting agency or organization. A copy of the preceptor's CV or resume must be attached to the proposal for review by the course committee. The proposal also must include a list of target competencies and a timeline for completion of the contact hours. The student is required to complete a written agreement regarding the project requirements which is signed by both the student and the preceptor.

Student performance during the practice experience is evaluated based on: a written final report describing the project and the skills and competencies developed, journal-type reports of "critical incidents" that occurred during the experience, a performance evaluation by the on-site preceptor, and a final oral presentation of the experience. Practice sites are evaluated based on student and preceptor reports assessing the experience. Practice sites and projects are also reviewed in summary form during formal meetings of the Public Health Program faculty.

6. Graduation Requirements

- A total of 42 credit hours are required for graduation.
- Students must complete the MPH core and track curriculum detailed in Section 3.
- Students must successfully complete and MPH capstone project final report and presentation detailed in Section 4.
- Students must successfully complete the Public Health Practice Experience as detailed in Section 5.
- Students must complete all necessary paperwork for candidacy and graduation. An MPH degree checklist and important calendar dates are in Appendix F.
- Most importantly, **read your emails from Shannon Carroll and check with her to make sure you have not missed anything!**

"The task of the department of preventive medicine, in sum, is then:

(1) To teach the medical student what he needs to know about available techniques for the prevention of communicable disease;

(2) To give him an understanding of epidemiology and quantitative methods in medical science;

(3) To sensitize him to opportunities for arresting the development of non-communicable disease;

(4) To make him aware of the patient as a person and thus to initiate him more fully into the art of medicine; and ultimately

(5) To show him how medicine can help to maintain or increase productive energy in both normal and handicapped individuals."

G. Smith and L.J. Evans, MD (1944)

"Preventive Medicine: An Attempt at a Definition."
Science 100 (2586):39-42.

Appendix A

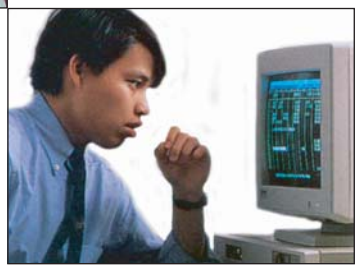
Competency Sets

ASPH Education Committee

Master's Degree in Public Health Core Competency Model

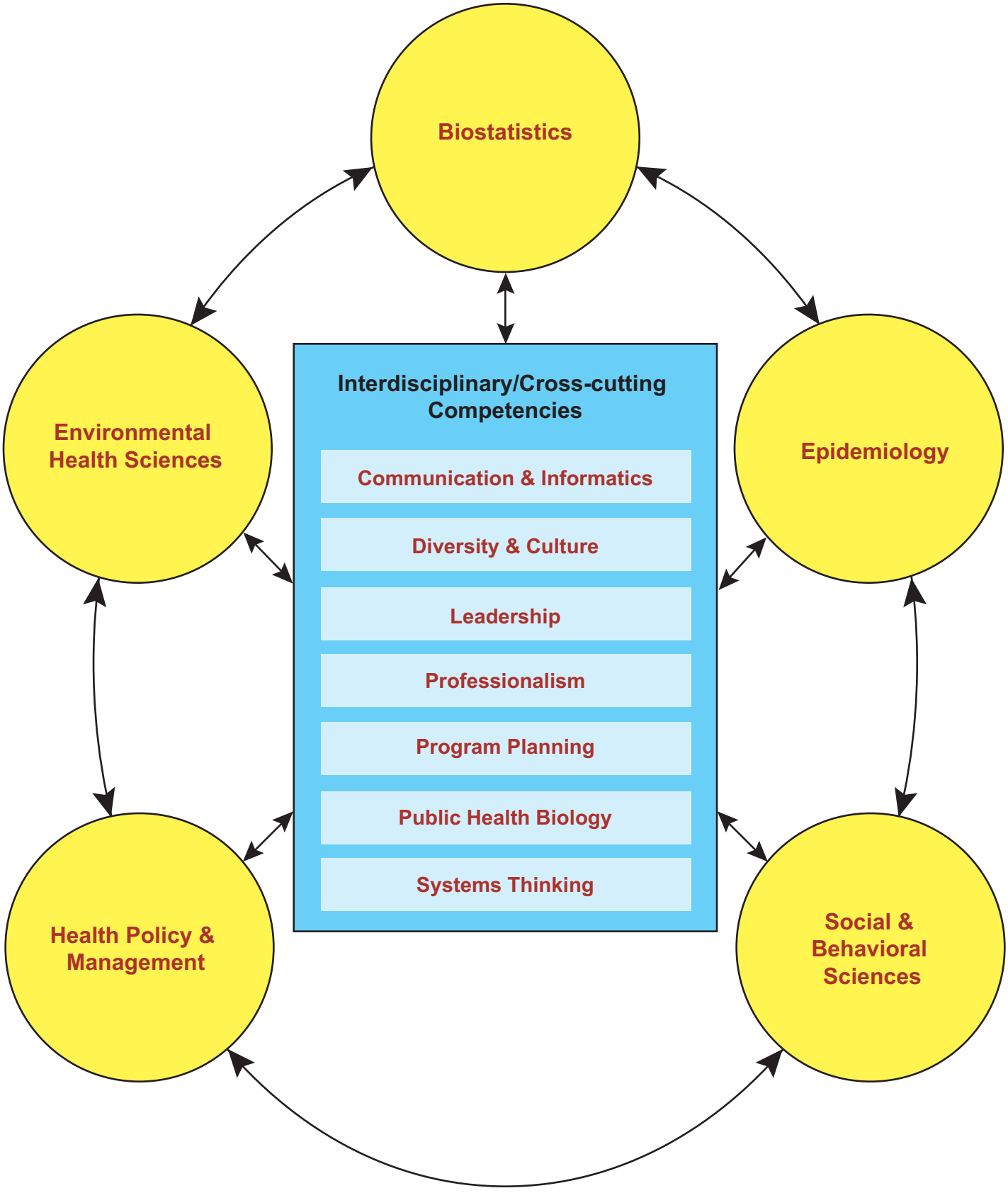
Version 2.3

August 2006



ASPH ASSOCIATION OF SCHOOLS OF PUBLIC HEALTH

III. Graphic Model



IV. Discipline-specific Definitions*

- **Biostatistics**
  Biostatistics is the development and application of statistical reasoning and methods in addressing, analyzing and solving problems in public health; health care; and biomedical, clinical and population-based research.

- **Environmental Health Sciences**
  Environmental health sciences represent the study of environmental factors including biological, physical and chemical factors that affect the health of a community.

- **Epidemiology**
  Epidemiology is the study of patterns of disease and injury in human populations and the application of this study to the control of health problems.

- **Health Policy and Management**
  Health policy and management is a multidisciplinary field of inquiry and practice concerned with the delivery, quality and costs of health care for individuals and populations. This definition assumes both a managerial and a policy concern with the structure, process and outcomes of health services including the costs, financing, organization, outcomes and accessibility of care.

- **Social and Behavioral Sciences**
  The behavioral and social sciences in public health address the behavioral, social and cultural factors related to individual and population health and health disparities over the life course. Research and practice in this area contributes to the development, administration and evaluation of programs and policies in public health and health services to promote and sustain healthy environments and healthy lives for individuals and populations.

**Definitions are provided to define the context by which the workgroups' competency modeling development activities took place and are not intended to describe the entire field of the particular discipline's scholarship and practice.*

V. Interdisciplinary/Cross-cutting Definitions*

- **Communication and Informatics**
  The ability to collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process, and present information to different audiences in-person, through information technologies, or through media channels; and to strategically design the information and knowledge exchange process to achieve specific objectives.

- **Diversity and Culture**
  The ability to interact with both diverse individuals and communities to produce or impact an intended public health outcome.

- **Leadership**
  The ability to create and communicate a shared vision for a changing future; champion solutions to organizational and community challenges; and energize commitment to goals.

- **Professionalism**
  The ability to demonstrate ethical choices, values and professional practices implicit in public health decisions; consider the effect of choices on community stewardship, equity, social justice and accountability; and to commit to personal and institutional development.

- **Program Planning**
  The ability to plan for the design, development, implementation, and evaluation of strategies to improve individual and community health.

- **Public Health Biology**
  Public health biology is the biological and molecular context of public health.

- **Systems Thinking**
  The ability to recognize system level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments.

**Definitions are provided to define the context by which the workgroups' competency modeling development activities took place and are not intended to describe the entire field of the particular discipline's scholarship and practice.*

VI. Discipline-specific Competencies

BIOSTATISTICS

Biostatistics is the development and application of statistical reasoning and methods in addressing, analyzing and solving problems in public health; health care; and biomedical, clinical and population-based research.

Competencies: Upon graduation a student with an MPH should be able to…

1. Describe the roles biostatistics serves in the discipline of public health.
2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.
3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
5. Apply descriptive techniques commonly used to summarize public health data.
6. Apply common statistical methods for inference.
7. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question.
8. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
9. Interpret results of statistical analyses found in public health studies.
10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.

Discipline-specific Competencies *(continued)*

ENVIRONMENTAL HEALTH SCIENCES

Environmental health sciences represent the study of environmental factors including biological, physical and chemical factors that affect the health of a community.

Competencies: Upon graduation a student with an MPH should be able to…

1. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.
2. Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.
4. Specify current environmental risk assessment methods.
5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.
6. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
7. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.
8. Develop a testable model of environmental insult.

Discipline-specific Competencies *(continued)*

EPIDEMIOLOGY

Epidemiology is the study of patterns of disease and injury in human populations and the application of this study to the control of health problems.

Competencies: Upon graduation a student with an MPH should be able to…

1. Identify key sources of data for epidemiologic purposes.
2. Identify the principles and limitations of public health screening programs.
3. Describe a public health problem in terms of magnitude, person, time and place.
4. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
6. Apply the basic terminology and definitions of epidemiology.
7. Calculate basic epidemiology measures.
8. Communicate epidemiologic information to lay and professional audiences.
9. Draw appropriate inferences from epidemiologic data.
10. Evaluate the strengths and limitations of epidemiologic reports.

Discipline-specific Competencies *(continued)*

HEALTH POLICY AND MANAGEMENT

Health policy and management is a multidisciplinary field of inquiry and practice concerned with the delivery, quality and costs of health care for individuals and populations. This definition assumes both a managerial and a policy concern with the structure, process and outcomes of health services including the costs, financing, organization, outcomes and accessibility of care.

Competencies: Upon graduation a student with an MPH should be able to…

1. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US.
2. Describe the legal and ethical bases for public health and health services.
3. Explain methods of ensuring community health safety and preparedness.
4. Discuss the policy process for improving the health status of populations.
5. Apply the principles of program planning, development, budgeting, management and evaluation in organizational and community initiatives.
6. Apply principles of strategic planning and marketing to public health.
7. Apply quality and performance improvement concepts to address organizational performance issues.
8. Apply "systems thinking" for resolving organizational problems.
9. Communicate health policy and management issues using appropriate channels and technologies.
10. Demonstrate leadership skills for building partnerships.

Discipline-specific Competencies *(continued)*

SOCIAL AND BEHAVIORAL SCIENCES

The social and behavioral sciences in public health address the behavioral, social and cultural factors related to individual and population health and health disparities over the life course. Research and practice in this area contributes to the development, administration and evaluation of programs and policies in public health and health services to promote and sustain healthy environments and healthy lives for individuals and populations.

Competencies: Upon graduation a student with an MPH should be able to…

1. Identify basic theories, concepts and models from a range of social and behavioral disciplines that are used in public health research and practice.
2. Identify the causes of social and behavioral factors that affect health of individuals and populations.
3. Identify individual, organizational and community concerns, assets, resources and deficits for social and behavioral science interventions.
4. Identify critical stakeholders for the planning, implementation and evaluation of public health programs, policies and interventions.
5. Describe steps and procedures for the planning, implementation and evaluation of public health programs, policies and interventions.
6. Describe the role of social and community factors in both the onset and solution of public health problems.
7. Describe the merits of social and behavioral science interventions and policies.
8. Apply evidence-based approaches in the development and evaluation of social and behavioral science interventions.
9. Apply ethical principles to public health program planning, implementation and evaluation.
10. Specify multiple targets and levels of intervention for social and behavioral science programs and/or policies.

VII. Interdisciplinary/Cross-cutting Competencies

COMMUNICATION AND INFORMATICS

The ability to collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process, and present information to different audiences in-person, through information technologies, or through media channels; and to strategically design the information and knowledge exchange process to achieve specific objectives.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Describe how the public health information infrastructure is used to collect, process, maintain, and disseminate data.
2. Describe how societal, organizational, and individual factors influence and are influenced by public health communications.
3. Discuss the influences of social, organizational and individual factors on the use of information technology by end users.
4. Apply theory and strategy-based communication principles across different settings and audiences.
5. Apply legal and ethical principles to the use of information technology and resources in public health settings.
6. Collaborate with communication and informatics specialists in the process of design, implementation, and evaluation of public health programs.
7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.
8. Use information technology to access, evaluate, and interpret public health data.
9. Use informatics methods and resources as strategic tools to promote public health.
10. Use informatics and communication methods to advocate for community public health programs and policies.

Interdisciplinary/Cross-cutting Competencies (continued)

DIVERSITY AND CULTURE

The ability to interact with both diverse individuals and communities to produce or impact an intended public health outcome.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Describe the roles of, history, power, privilege and structural inequality in producing health disparities.
2. Explain how professional ethics and practices relate to equity and accountability in diverse community settings.
3. Explain why cultural competence alone cannot address health disparity.
4. Discuss the importance and characteristics of a sustainable diverse public health workforce.
5. Use the basic concepts and skills involved in culturally appropriate community engagement and empowerment with diverse communities.
6. Apply the principles of community-based participatory research to improve health in diverse populations.
7. Differentiate among availability, acceptability, and accessibility of health care across diverse populations.
8. Differentiate between linguistic competence, cultural competency, and health literacy in public health practice.
9. Cite examples of situations where consideration of culture-specific needs resulted in a more effective modification or adaptation of a health intervention.
10. Develop public health programs and strategies responsive to the diverse cultural values and traditions of the communities being served.

Interdisciplinary/Cross-cutting Competencies (continued)

LEADERSHIP

The ability to create and communicate a shared vision for a changing future; champion solutions to organizational and community challenges; and energize commitment to goals.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Describe the attributes of leadership in public health.
2. Describe alternative strategies for collaboration and partnership among organizations, focused on public health goals.
3. Articulate an achievable mission, set of core values, and vision.
4. Engage in dialogue and learning from others to advance public health goals.
5. Demonstrate team building, negotiation, and conflict management skills.
6. Demonstrate transparency, integrity, and honesty in all actions.
7. Use collaborative methods for achieving organizational and community health goals.
8. Apply social justice and human rights principles when addressing community needs.
9. Develop strategies to motivate others for collaborative problem solving, decision-making, and evaluation.

Interdisciplinary/Cross-cutting Competencies (continued)

PUBLIC HEALTH BIOLOGY

The ability to incorporate public health biology – the biological and molecular context of public health – into public health practice.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Specify the role of the immune system in population health.
2. Describe how behavior alters human biology.
3. Identify the ethical, social and legal issues implied by public health biology.
4. Explain the biological and molecular basis of public health.
5. Explain the role of biology in the ecological model of population-based health.
6. Explain how genetics and genomics affect disease processes and public health policy and practice.
7. Articulate how biological, chemical and physical agents affect human health.
8. Apply biological principles to development and implementation of disease prevention, control, or management programs.
9. Apply evidence-based biological and molecular concepts to inform public health laws, policies, and regulations.
10. Integrate general biological and molecular concepts into public health.

Public Health Biology Illustrative Sub-competencies are available at http://www.asph.org/document.cfm?page=928.

Interdisciplinary/Cross-cutting Competencies (continued)

PROFESSIONALISM

The ability to demonstrate ethical choices, values and professional practices implicit in public health decisions; consider the effect of choices on community stewardship, equity, social justice and accountability; and to commit to personal and institutional development.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Discuss sentinel events in the history and development of the public health profession and their relevance for practice in the field.
2. Apply basic principles of ethical analysis (e.g. the Public Health Code of Ethics, human rights framework, other moral theories) to issues of public health practice and policy.
3. Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health.
4. Apply the core functions of assessment, policy development, and assurance in the analysis of public health problems and their solutions.
5. Promote high standards of personal and organizational integrity, compassion, honesty and respect for all people.
6. Analyze determinants of health and disease using an ecological framework.
7. Analyze the potential impacts of legal and regulatory environments on the conduct of ethical public health research and practice.
8. Distinguish between population and individual ethical considerations in relation to the benefits, costs, and burdens of public health programs.
9. Embrace a definition of public health that captures the unique characteristics of the field (e.g., population-focused, community-oriented, prevention-motivated and rooted in social justice) and how these contribute to professional practice.
10. Appreciate the importance of working collaboratively with diverse communities and constituencies (e.g. researchers, practitioners, agencies and organizations).
11. Value commitment to lifelong learning and professional service including active participation in professional organizations.

Interdisciplinary/Cross-cutting Competencies (continued)

PROGRAM PLANNING

The ability to plan for the design, development, implementation, and evaluation of strategies to improve individual and community health.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Describe how social, behavioral, environmental, and biological factors contribute to specific individual and community health outcomes.
2. Describe the tasks necessary to assure that program implementation occurs as intended.
3. Explain how the findings of a program evaluation can be used.
4. Explain the contribution of logic models in program development, implementation, and evaluation.
5. Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program.
6. Differentiate the purposes of formative, process, and outcome evaluation.
7. Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations, and appropriate uses, and emphases on reliability and validity.
8. Prepare a program budget with justification.
9. In collaboration with others, prioritize individual, organizational, and community concerns and resources for public health programs.
10. Assess evaluation reports in relation to their quality, utility, and impact on public health.

Interdisciplinary/Cross-cutting Competencies (continued)

SYSTEMS THINKING

The ability to recognize system level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments.

Competencies: Upon graduation, it is increasingly important that a student with an MPH be able to…

1. Identify characteristics of a system.
2. Identify unintended consequences produced by changes made to a public health system.
3. Provide examples of feedback loops and "stocks and flows" within a public health system.
4. Explain how systems (e.g. individuals, social networks, organizations, and communities) may be viewed as systems within systems in the analysis of public health problems.
5. Explain how systems models can be tested and validated.
6. Explain how the contexts of gender, race, poverty, history, migration, and culture are important in the design of interventions within public health systems.
7. Illustrate how changes in public health systems (including input, processes, and output) can be measured.
8. Analyze inter-relationships among systems that influence the quality of life of people in their communities.
9. Analyze the effects of political, social and economic policies on public health systems at the local, state, national and international levels.
10. Analyze the impact of global trends and interdependencies on public health related problems and systems.
11. Assess strengths and weaknesses of applying the systems approach to public health problems.

More information about Systems Thinking is available at http://www.asph.org/document.cfm?page=898.

The Council on Linkages Between Academia and Public Health Practice

Tier 1, Tier 2 and Tier 3 Core Competencies for Public Health Professionals (ADOPTED May 3, 2010)

(This version contains Core Competencies with examples provided as footnotes.)

Introduction

The Core Competencies for Public Health Professionals (Core Competencies) are a set of skills desirable for the broad practice of public health. They reflect the characteristics that staff of public health organizations (collectively) may want to possess as they work to protect and promote health in the community. The Core Competencies are designed to serve **as a starting point** for academic and practice organizations to understand, assess, and meet education, training and workforce needs.

About the Three Tiers – 1, 2 and 3

Tiers 1, 2 and 3 reflect the Core Competencies that public health professionals at different stages of their career may wish to have. Specifically, Tier 1 Core Competencies apply to entry level public health professionals (i.e. individuals that have limited experience working in the public health field and are not in management positions); Tier 2 Core Competencies apply to individuals with management and/or supervisory responsibilities; and Tier 3 Core Competencies apply to senior managers and/or leaders of public health organizations.

On May 3, 2010, the Council on Linkages Between Academia and Public Health Practice (a coalition of representatives from 17 national public health organizations) unanimously adopted Tier 1 and Tier 3 Core Competencies, as well as minor changes to the Tier 2 Core Competencies. Tier 2 Core Competencies were originally adopted in June 2009. However, it was noted that some minor changes to Tier 2 Core Competencies were desirable in order to ensure a logical progression of competencies from Tier 1 to Tier 2 to Tier 3. “Guidance definitions” for the Tier 1, Tier 2 and Tier 3 Core Competencies are listed on page 16 of this document.

Why the Core Competencies are Important

Over 50% of state and local health departments and more than 90% of public health academic institutions are using the Core Competencies to identify and meet workforce development needs. To learn more about how public health organizations are using the Core Competencies, go to http://www.phf.org/programs/council/Pages/Core_PublicHealthCompetencies_Examples_of_use.aspx.

Please Note

In the tables below, a grey background is used to denote that the same competency appears in more than one Tier. It should be noted that while the same competency may appear in more than one Tier, the way one demonstrates competence may vary from Tier to Tier.

Analytical/Assessment Skills		
Tier 1[i]	**Tier 2 (Mid Tier)**[ii]	**Tier 3**[iii]
1A1. Identifies the health status of populations and their related determinants of health and illness[iv]	1B1. Assesses the health status of populations and their related determinants of health and illness[v]	1C1. Reviews the health status of populations and their related determinants of health and illness conducted by the organization[vi]
1A2. Describes the characteristics of a population-based health problem[vii]	1B2. Describes the characteristics of a population-based health problem[viii]	1C2. Describes the characteristics of a population-based health problem[ix]
1A3. Uses variables that measure public health conditions	1B3. Generates variables that measure public health conditions	1C3. Evaluates variables that measure public health conditions
1A4. Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	1B4. Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	1C4. Critiques methods and instruments for collecting valid and reliable quantitative and qualitative data
1A5. Identifies sources of public health data and information	1B5. References sources of public health data and information	1C5. Expands access to public health data and information
1A6. Recognizes the integrity and comparability of data	1B6. Examines the integrity and comparability of data	1C6. Evaluates the integrity and comparability of data
1A7. Identifies gaps in data sources	1B7. Identifies gaps in data sources	1C7. Rectifies gaps in data sources
1A8. Adheres to ethical principles in the collection, maintenance, use, and dissemination of data and information	1B8. Employs ethical principles in the collection, maintenance, use, and dissemination of data and information	1C8. Ensures the application of ethical principles in the collection, maintenance, use, and dissemination of data and information

Analytical/Assessment Skills		
Tier 1	**Tier 2**	**Tier 3**
1A9. Describes the public health applications of quantitative and qualitative data	1B9. Interprets quantitative and qualitative data	1C9. Integrates the findings from quantitative and qualitative data into organizational operations
1A10. Collects quantitative and qualitative community data[x]	1B10. Makes community-specific inferences from quantitative and qualitative data[xi]	1C10. Determines community specific trends from quantitative and qualitative data[xii]
1A11. Uses information technology to collect, store, and retrieve data	1B11. Uses information technology to collect, store, and retrieve data	1C11. Uses information technology to collect, store, and retrieve data
1A12. Describes how data are used to address scientific, political, ethical, and social public health issues	1B12. Uses data to address scientific, political, ethical, and social public health issues	1C12. Incorporates data into the resolution of scientific, political, ethical, and social public health concerns
		1C13. Identifies the resources to meet community health needs

Policy Development/Program Planning Skills		
Tier 1	**Tier 2**	**Tier 3**
2A1. Gathers information relevant to specific public health policy issues	2B1. Analyzes information relevant to specific public health policy issues	2C1. Evaluates information relevant to specific public health policy issues
2A2. Describes how policy options can influence public health programs	2B2. Analyzes policy options for public health programs	2C2. Decides policy options for public health organization
2A3. Explains the expected outcomes of policy options[xiii]	2B3. Determines the feasibility and expected outcomes of policy options[xiv]	2C3. Critiques the feasibility and expected outcomes of various policy options[xv]
2A4. Gathers information that will inform policy decisions[xvi]	2B4. Describes the implications of policy options[xvii]	2C4. Critiques selected policy options using data and information[xviii]
		2C5. Determines policy for the public health organization with guidance from the organization's governing body
	2B5. Uses decision analysis for policy development and program planning	2C6. Critiques decision analyses that result in policy development and program planning
2A5. Describes the public health laws and regulations governing public health programs	2B6. Manages public health programs consistent with public health laws and regulations	2C7. Ensures public health programs are consistent with public health laws and regulations
2A6. Participates in program planning processes	2B7. Develops plans to implement policies and programs	2C8. Implements plans and programs consistent with policies

Policy Development/Program Planning Skills		
Tier 1	**Tier 2**	**Tier 3**
2A7. Incorporates policies and procedures into program plans and structures	2B8. Develops policies for organizational plans, structures, and programs	2C9. Ensures the consistency of policy integration into organizational plans, procedures, structures, and programs
2A8. Identifies mechanisms to monitor and evaluate programs for their effectiveness and quality	2B9. Develops mechanisms to monitor and evaluate programs for their effectiveness and quality	2C10. Critiques mechanisms to evaluate programs for their effectiveness and quality
2A9. Demonstrates the use of public health informatics practices and procedures[xix]	2B10. Incorporates public health informatics practices[xx]	2C11. Oversees public health informatics practices and procedures[xxi]
2A10. Applies strategies for continuous quality improvement	2B11. Develops strategies for continuous quality improvement	2C12. Implements organizational and system-wide strategies for continuous quality improvement
		2C13. Integrates emerging trends of the fiscal, social and political environment into public health strategic planning

Communication Skills		
Tier 1	**Tier 2**	**Tier 3**
3A1. Identifies the health literacy of populations served	3B1. Assesses the health literacy of populations served	3C1. Ensures that the health literacy of populations served is considered throughout all communication strategies
3A2. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	3B2. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	3C2. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency
3A3. Solicits community-based input from individuals and organizations	3B3. Solicits input from individuals and organizations	3C3. Ensures that the public health organization seeks input from other organizations and individuals
3A4. Conveys public health information using a variety of approaches[xxii]	3B4. Uses a variety of approaches to disseminate public health information[xxiii]	3C4. Ensures a variety of approaches are considered and used to disseminate public health information [xxiv]
3A5. Participates in the development of demographic, statistical, programmatic and scientific presentations	3B5. Presents demographic, statistical, programmatic, and scientific information for use by professional and lay audiences	3C5. Interprets demographic, statistical, programmatic, and scientific information for use by professional and lay audiences
3A6. Applies communication and group dynamic strategies[xxv] in interactions with individuals and groups	3B6. Applies communication and group dynamic strategies[xxvi] in interactions with individuals and groups	3C6. Applies communication and group dynamic strategies[xxvii] in interactions with individuals and groups
		3C7. Communicates the role of public health within the overall health system[xxviii]

Cultural Competency Skills					
Tier 1		**Tier 2**		**Tier 3**	
4A1.	Incorporates strategies for interacting with persons from diverse backgrounds[xxix]	4B1.	Incorporates strategies for interacting with persons from diverse backgrounds[xxx]	4C1.	Ensures that there are strategies for interacting with persons from diverse backgrounds[xxxi]
4A2.	Recognizes the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	4B2.	Considers the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	4C2.	Ensures the consideration of the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services
4A3.	Responds to diverse needs that are the result of cultural differences	4B3.	Responds to diverse needs that are the result of cultural differences	4C3.	Responds to diverse needs that are the result of cultural differences
4A4.	Describes the dynamic forces that contribute to cultural diversity	4B4.	Explains the dynamic forces that contribute to cultural diversity	4C4.	Assesses the dynamic forces that contribute to cultural diversity
4A5.	Describes the need for a diverse public health workforce	4B5.	Describes the need for a diverse public health workforce	4C5.	Assesses the need for a diverse public health workforce
4A6.	Participates in the assessment of the cultural competence of the public health organization	4B6.	Assesses public health programs for their cultural competence	4C6.	Assesses the public health organization for its cultural competence
				4C7.	Ensures the public health organization's cultural competence

Community Dimensions of Practice Skills		
Tier 1	**Tier 2**	**Tier 3**
5A1. Recognizes community linkages and relationships among multiple factors (or determinants) affecting health[xxxii]	5B1. Assesses community linkages and relationships among multiple factors (or determinants) affecting health	5C1. Evaluates the community linkages and relationships among multiple factors (or determinants) affecting health
5A2. Demonstrates the capacity to work in community-based participatory research efforts	5B2. Collaborates in community-based participatory research efforts	5C2. Encourages community-based participatory research efforts within the public health organization
5A3. Identifies stakeholders	5B3. Establishes linkages with key stakeholders	5C3. Establishes linkages with key stakeholders
5A4. Collaborates with community partners to promote the health of the population	5B4. Facilitates collaboration and partnerships to ensure participation of key stakeholders	5C4. Ensures the collaboration and partnerships of key stakeholders through the development of formal and informal agreements[xxxiii]
5A5. Maintains partnerships with key stakeholders	5B5. Maintains partnerships with key stakeholders	5C5. Maintains partnerships with key stakeholders
5A6. Uses group processes to advance community involvement	5B6. Uses group processes to advance community involvement	5C6. Uses group processes to advance community involvement
5A7. Describes the role of governmental and non-governmental organizations in the delivery of community health services	5B7. Distinguishes the role of governmental and non-governmental organizations in the delivery of community health services	5C7. Integrates the role of governmental and non-governmental organizations in the delivery of community health services

Community Dimensions of Practice Skills		
Tier 1	**Tier 2**	**Tier 3**
5A8. Identifies community assets and resources	5B8. Negotiates for the use of community assets and resources	5C8. Negotiates for the use of community assets and resources through MOUs and other formal and informal agreements
5A9. Gathers input from the community to inform the development of public health policy and programs	5B9. Uses community input when developing public health policies and programs	5C9. Ensures community input when developing public health policies and programs
5A10. Informs the public about policies, programs, and resources	5B10. Promotes public health policies, programs, and resources	5C10. Defends public health policies, programs, and resources
		5C11. Evaluates the effectiveness of community engagement strategies on public health policies, programs, and resources

Public Health Sciences Skills					
Tier 1		**Tier 2**		**Tier 3**	
6A1.	Describes the scientific foundation of the field of public health	6B1.	Discusses the scientific foundation of the field of public health	6C1.	Critiques the scientific foundation of the field of public health
6A2.	Identifies prominent events in the history of the public health profession	6B2.	Distinguishes prominent events in the history of the public health profession	6C2.	Explains lessons to be learned from prominent events in the history in comparison to the current events of the public health profession
6A3.	Relates public health science skills to the Core Public Health Functions and Ten Essential Services of Public Health	6B3.	Relates public health science skills to the Core Public Health Functions and Ten Essential Services of Public Health	6C3.	Incorporates the Core Public Health Functions and Ten Essential Services of Public Health into the practice of the public health sciences
6A4.	Identifies the basic public health sciences (including, but not limited to biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral health sciences)	6B4.	Applies the basic public health sciences (including, but not limited to biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral health sciences) to public health policies and programs	6C4.	Applies the basic public health sciences (including, but not limited to biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral health sciences) to public health policies and programs
6A5.	Describes the scientific evidence related to a public health issue, concern, or, intervention	6B5.	Conducts a comprehensive review of the scientific evidence related to a public health issue, concern, or, intervention	6C5.	Integrates a review of the scientific evidence related to a public health issue, concern, or, intervention into the practice of public health
6A6.	Retrieves scientific evidence from a variety of text and electronic sources	6B6.	Retrieves scientific evidence from a variety of text and electronic sources	6C6.	Synthesizes scientific evidence from a variety of text and electronic sources

Public Health Sciences Skills		
Tier 1	**Tier 2**	**Tier 3**
6A7. Discusses the limitations of research findings[xxxiv]	6B7. Determines the limitations of research findings[xxxv]	6C7. Critiques the limitations of research findings[xxxvi]
6A8. Describes the laws, regulations, policies and procedures for the ethical conduct of research[xxxvii]	6B8. Determines the laws, regulations, policies and procedures for the ethical conduct of research[xxxviii]	6C8. Advises on the laws, regulations, policies and procedures for the ethical conduct of research[xxxix]
6A9. Partners with other public health professionals in building the scientific base of public health	6B9. Contributes to building the scientific base of public health	6C9. Contributes to building the scientific base of public health
		6C10. Establishes partnerships with academic and other organizations to expand the public health science base and disseminate research findings

Financial Planning and Management Skills		
Tier 1	**Tier 2**	**Tier 3**
7A1. Describes the local, state, and federal public health and health care systems	7B1. Interprets the interrelationships of local, state, and federal public health and health care systems for public health program management	7C1. Leverages the interrelationships of local, state, and federal public health and health care systems for public health program management
7A2. Describes the organizational structures, functions, and authorities of local, state, and federal public health agencies	7B2. Interprets the organizational structures, functions, and authorities of local, state, and federal public health agencies for public health program management	7C2. Leverages the organizational structures, functions, and authorities of local, state, and federal public health agencies for public health program management
7A3. Adheres to the organization's policies and procedures	7B3. Develops partnerships with agencies within the federal, state, and local levels of government that have authority over public health situations or with specific issues, such as emergency events	7C3. Manages partnerships with agencies within the federal, state, and local levels of government that have authority over public health situations or with specific issues, such as emergency events
	7B4. Implements the judicial and operational procedures of the governing body and/or administrative unit that oversees the operations of the public health organization	7C4. Manages the implementation of the judicial and operational procedures of the governing body and/or administrative unit that oversees the operations of the public health organization
7A4. Participates in the development of a programmatic budget	7B5. Develops a programmatic budget	7C5. Defends a programmatic and organizational budget

Financial Planning and Management Skills		
Tier 1	**Tier 2**	**Tier 3**
7A5. Operates programs within current and forecasted budget constraints	7B6. Manages programs within current and forecasted budget constraints	7C6. Ensures that programs are managed within current and forecasted budget constraints
7A6. Identifies strategies for determining budget priorities based on federal, state, and local financial contributions	7B7. Develops strategies for determining budget priorities based on federal, state, and local financial contributions	7C7. Critiques strategies for determining budget priorities
		7C8. Determines budgetary priorities for the organization
7A7. Reports program performance	7B8. Evaluates program performance	7C9. Evaluates program performance
7A8. Translates evaluation report information into program performance improvement action steps	7B9. Uses evaluation results to improve performance	7C10. Uses evaluation results to improve performance
7A9. Contributes to the preparation of proposals for funding from external sources	7B10. Prepares proposals for funding from external sources	7C11. Approves proposals for funding from external sources
7A10. Applies basic human relations skills to internal collaborations, motivation of colleagues, and resolution of conflicts	7B11. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts	7C12. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts

Financial Planning and Management Skills		
Tier 1	**Tier 2**	**Tier 3**
7A11. Demonstrates public health informatics skills to improve program and business operations[xl]	7B12. Applies public health informatics skills to improve program and business operations[xli]	7C13. Integrates public health informatics skills into program and business operations[xlii]
7A12. Participates in the development of contracts and other agreements for the provision of services	7B13. Negotiates contracts and other agreements for the provision of services	7C14. Approves contracts and other agreements for the provision of services
7A13. Describes how cost-effectiveness, cost-benefit, and cost-utility analyses affect programmatic prioritization and decision making	7B14. Uses cost-effectiveness, cost-benefit, and cost-utility analyses in programmatic prioritization and decision making	7C15. Includes the use of cost-effectiveness, cost-benefit, and cost-utility analyses in programmatic prioritization and decision making
		7C16. Incorporates data and information to improve organizational processes and performance
		7C17. Establishes a performance management system

Leadership and Systems Thinking Skills		
Tier 1	**Tier 2**	**Tier 3**
8A1. Incorporates ethical standards of practice as the basis of all interactions with organizations, communities, and individuals	8B1. Incorporates ethical standards of practice as the basis of all interactions with organizations, communities, and individuals	8C1. Incorporates ethical standards of practice as the basis of all interactions with organizations, communities, and individuals
8A2. Describes how public health operates within a larger system	8B2. Incorporates systems thinking into public health practice	8C2. Integrates systems thinking into public health practice
8A3. Participates with stakeholders in identifying key public health values and a shared public health vision as guiding principles for community action	8B3. Participates with stakeholders in identifying key values and a shared vision as guiding principles for community action	8C3. Partners with stakeholders to determine key values and a shared vision as guiding principles for community action
8A4. Identifies internal and external problems that may affect the delivery of Essential Public Health Services	8B4. Analyzes internal and external problems that may affect the delivery of Essential Public Health Services	8C4. Resolves internal and external problems that may affect the delivery of Essential Public Health Services[xliii]
8A5. Uses individual, team and organizational learning opportunities for personal and professional development	8B5. Promotes individual, team and organizational learning opportunities	8C5. Advocates for individual, team and organizational learning opportunities within the organization
8A6. Participates in mentoring and peer review or coaching opportunities	8B6. Establishes mentoring, peer advising, coaching or other personal development opportunities for the public health workforce	8C6. Promotes mentoring, peer advising, coaching or other personal development opportunities for the public health workforce, including him or herself
8A7. Participates in the measuring, reporting and continuous improvement of organizational performance	8B7. Contributes to the measuring, reporting and continuous improvement of organizational performance	8C7. Ensures the measuring, reporting and continuous improvement of organizational performance

Leadership and Systems Thinking Skills		
Tier 1	**Tier 2**	**Tier 3**
8A8. Describes the impact of changes in the public health system, and larger social, political, economic environment on organizational practices	8B8. Modifies organizational practices in consideration of changes in the public health system, and the larger social, political, and economic environment	8C8. Ensures organizational practices are in concert with changes in the public health system, and the larger social, political, and economic environment
		8C9. Ensures the management of organizational change

[i] Tier 1 Core Competencies apply to public health professionals who carry out the day-to-day tasks of public health organizations and are not in management positions. Responsibilities of these public health professionals may include basic data collection and analysis, fieldwork, program planning, outreach activities, programmatic support, and other organizational tasks.

[ii] Tier 2 (Mid Tier) Core Competencies apply to individuals with program management and/or supervisory responsibilities. Other responsibilities may include: program development, program implementation, program evaluation, establishing and maintaining community relations, managing timelines and work plans, presenting arguments and recommendations on policy issues etc.

[iii] Tier 3 Core Competencies apply to individuals at a senior/management level and leaders of public health organizations. In general, an individual who is responsible for the major programs or functions of an organization, setting a strategy and vision for the organization, and/or building the organization's culture can be considered to be a Tier 3 public health professional. Tier 3 public health professionals (e.g. health officers, executive directors, CEOs etc.) typically have staff that report to them.

[iv] Examples include: factors contributing to health promotion and disease prevention, the quality, availability and use of health services

[v] Examples include: factors contributing to health promotion and disease prevention, availability and use of health services

[vi] Examples include: factors contributing to health promotion and disease prevention, availability and use of health services

[vii] Examples include: equity, social determinants, environment

[viii] Examples include: equity, social determinants, environment

[ix] Examples include: equity, social determinants, environment

[x] Examples include: risks and benefits to the community, health and resource needs

[xi] Examples include: risks and benefits to the community, health and resource needs

[xii] Examples include: risks and benefits to the community, health and resource needs

[xiii] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xiv] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xv] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xvi] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xvii] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xviii] Examples include: health, fiscal, administrative, legal, ethical, social, political

[xix] Examples include: use of information systems infrastructure to improve health outcomes

[xx] Examples include: use of data and information technology standards across the agency where applicable, and use of standard software development life cycle principles when developing new IT applications

[xxi] Examples include: use of data and information technology standards across the agency where applicable, and use of standard software development life cycle principles when developing new IT applications

[xxii] Examples include: social networks, media, blogs

[xxiii] Examples include: social networks, media, blogs

[xxiv] Examples include: social networks, media, blogs

[xxv] Examples include: principled negotiation, conflict resolution, active listening, risk communication

[xxvi] Examples include: principled negotiation, conflict resolution, active listening, risk communication

[xxvii] Examples include: principled negotiation, conflict resolution, active listening, risk communication

[xxviii]Examples include: federal, state, county, local government

[xxix] Examples include: cultural, socioeconomic, educational, racial, gender, age, ethnic, sexual orientation, professional, religious affiliation, mental and physical capabilities

[xxx] Examples include: cultural, socioeconomic, educational, racial, gender, age, ethnic, sexual orientation, professional, religious affiliation, mental and physical capabilities

[xxxi] Examples include: cultural, socioeconomic, educational, racial, gender, age, ethnic, sexual orientation, professional, religious affiliation, mental and physical capabilities

[xxxii] An example is the Socio-Ecological Model

[xxxiii] Examples include: MOUs, contracts, letters of endorsement

[xxxiv] Examples include: limitations of data sources, importance of observations and interrelationships

[xxxv] Examples include: limitations of data sources, importance of observations and interrelationships

[xxxvi] Examples include: limitations of data sources, importance of observations and interrelationships

[xxxvii] Examples include: patient confidentiality, human subject processes

[xxxviii] Examples include: patient confidentiality, human subject processes

[xxxix] Examples include: patient confidentiality, human subject processes

[xl] Examples include: performance management and improvement

[xli] Examples include: business process analysis, enterprise-wide information planning

[xlii] Examples include: business process analysis, enterprise-wide information planning

[xliii] An example is the identification of root causes and other QI processes

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Core Competencies for Preventive Medicine Residents
Version 2.0

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During the early 1990s, the American College of Preventive Medicine (ACPM), with support from the Health Resources and Services Administration (HRSA), identified core competencies and performance indicators (measures to assess their achievement) for all preventive medicine residents. After the competencies were approved, distributed by the ACPM and HRSA, and published in the *American Journal of Preventive Medicine*, they were integrated in various ways into the operation of individual residency programs. Changes in the health care system during the decade, however, necessitated an update of the original competencies to better equip preventive medicine educators to prepare residents for new roles those in preventive medicine can play in a restructured health care system. HRSA funded an effort to produce Version 2.0 of the preventive medicine competencies based on review and refinement of the original competencies through a consensus process. This article includes these revised core competencies and performance indicators.

Medical Subject Headings (MeSH): competency, competency-based education, preventive medicine, public health, residency (Am J Prev Med 1999;16(4):367–372)

Introduction

The American College of Preventive Medicine (ACPM) has a long history of developing competencies for residents who enter this specialty. In the early 1990s, ACPM identified core competencies for all preventive medicine residents. Subsequently, the Health Resources and Services Administration (HRSA) helped fund a collaborative effort to identify competencies appropriate for each specialty area of preventive medicine (general preventive medicine/public health, occupational medicine, aerospace medicine) and to develop measures of achievement for both the core and specialty area competencies.[1,2] These competencies were approved by the ACPM Board of Regents for distribution as part of the ACPM Residency Training Manual for Preventive Medicine.

These core and specialty area competencies were intended to assist in structuring field assignments, achieving agreement in the expectations of residents and faculty, assessing residents' progress in the program, providing opportunities for residents to assess their own needs or gaps in training or experience, and identifying the expertise of graduates to potential employers and funding sources.

Many residents have integrated the ACPM competencies into the operation of their individual training programs. Several use them to evaluate resident performance by incorporating them into a grid that permits supervisors to document competency achievement and how and where this was accomplished. The competencies have been included in affiliation agreements between sponsoring and participating institutions, thereby meeting the Accreditation Council for Graduate Medical Education (ACGME) requirement for definition of the educational objectives of the affiliation experience. The specificity provided by the competencies has proved particularly useful at rotation sites where residents had not previously been assigned, since they guide the faculty in structuring appropriate learning opportunities.

Since the development of the original competencies, shifts in the financing and delivery of health care have changed the environment for the practice of preventive medicine, and have made the skills acquired by preventive medicine specialists even more important in the marketplace, where physicians are responsible for the health of a population, not just for individual patients. Critical to the transformation to capitated and outcomes-oriented health care are expertise in health promotion and disease prevention, outcomes measurement, and population-based health services. The rapid pace of change in the health care delivery system has

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necessitated a review and update of the original preventive medicine competencies to better equip preventive medicine educators to prepare residents for the key role those in preventive medicine will play in a restructured health care system.

HRSA funded an effort to revise the preventive medicine competencies as well as to develop a new set of competencies in the area of medical management.[3] A work group comprised of practitioners and academics developed the list of medical management competencies and updated the original competencies in the core content area management/administration. The products of the work group were then subjected to broad review throughout the field of preventive medicine as described previously.[3] The process of updating the other existing preventive medicine competencies was begun at the Fourth Annual HRSA/ACPM Preventive Medicine Residency Directors Workshop. Based on both small and large group sessions, a new draft was prepared and later circulated for review to interested parties, including members of the Board of Regents of ACPM, members of the ABPM, and members of the RRC for Preventive Medicine of the ACGME. The final version was submitted to the ACPM and HRSA for dissemination as a component of the ACPM residency training manual for preventive medicine and as a HRSA contract Final Report.

Revised Core Competencies and Performance Indicators: Version 2.0

Preface

The competencies are stated in general terms so they can apply broadly to all programs. Each program can add more specific competencies that correspond to its particular training opportunities, resources and concentrations.

Competencies are stated in behavioral terms; they are intended to define what preventive medicine residents can *do* as opposed to what they know or understand. The knowledge base has been previously defined through the American College of Preventive Medicine curriculum outlines.

These competencies are the outcome of an attempt to achieve consensus on skills to be expected of all preventive medicine residency graduates. They can help define our specialty to potential employers and applicants to our residencies as well as to our colleagues in other specialties. In addition, they can serve as a guide to faculty, preceptors, and residents in structuring practicum experiences.

The competencies are stated in terms of what should be expected of residents when they graduate. It is understood that residents may not have performed every competency at the level indicated while in training. These are recommended competencies and not requirements for accreditation or certification.

We have used the term core competencies to denote those that are common to all preventive medicine residents regardless of their specialty area. The core competencies include both content area competencies and those that cut across all the content areas. No priority order or ranking is intended between crosscutting and content area competencies; all are considered essential and part of the core.

Following each of the competencies is a selected list of performance indicators. These are categories of evidence to be used as a basis for judging achievement of the competency. They help to distinguish competent from incompetent performance. The performance indicators listed are only examples; the range of expected outcomes is so great and the indicators so varied that it would be impossible to identify an exhaustive list for each competency.

COMPETENCIES THAT ARE COMMON TO ALL CORE CONTENT AREAS

1. **Communicate to target groups, including health professionals, the public, and the media, in a clear and effective manner, both orally and in writing, the levels of risk from real or potential hazards, and the rationale for selected interventions.**

Communication reflects:

a. in-depth understanding of the group to be addressed, including the group's perception of risk
b. current knowledge of subject and transmission of accurate information (i.e., factual correctness and statistical soundness)
c. appropriate approach, methodology, format, messages, language, and audiovisual aids
d. appropriate appearance and level of formality
e. clear delivery and organization of material
f. effective responses to audience questions and comments
g. effective consensus building, direction, and call to action
h. plans to evaluate outcome of communication
i. preparation of materials for scholarly publications
j. appropriate management of confidentiality issues.

2. **Demonstrate the ability to prioritize new or ongoing projects or programs according to their potential impact, as defined by objective, measurable criteria.**

This reflects:

a. accurate statement of current knowledge about the problem
b. sound design and methodology
c. evidence-based assessment of outcomes
d. development and use of appropriate prioritization model
e. consideration of all articulated criteria, e.g.:
   – need for program

– fit with organization's jurisdiction, criteria, or mandate
– feasibility
– political realities
– resource constraints
– compatibility with goals of other relevant organizations
– absolute and relative costs in relation to benefits.

3. Use information technology for specific applications relevant to preventive medicine and public health.

a. Given the organization's options for automation, identify:
– appropriate and inappropriate uses for computers
– potential for networking and interface between system and user.
b. Be able to use computers for each of the following:
– word processing
– communications through the Internet
– reference retrieval
– statistical analysis and computations
– graphics and spreadsheets
– database management.

4. Interpret relevant laws and regulations relating to protection and promotion of the public's health.

This reflects:

a. review of legislation of all relevant jurisdictions on a particular issue, identifying to whom responsibilities are authorized and whether resources for implementation are appropriated
b. identification of need for statutes and regulations and the process by which they are developed
c. identification and explanation of methods to assess laws and regulations germane to the resident's assignment
d. recommendation of courses of action when questions arise based on recognition of legal and regulatory options.

5. Identify ethical, social, and cultural issues relating to policies, risks, research, and interventions in public health and preventive medicine contexts.

This reflects:

a. recognition of cultural diversity and its impact on community health issues
b. determination of risk as it relates to ethnic and cultural identification
c. development of a health program approach appropriate to and involving relevant groups that demonstrates awareness of:
– organizational values
– knowledge, attitudes, and behaviors related to health and disease
d. recognition of ethical issues related to interventions (including issues relating to gender)
e. conscientious use of human subjects review and informed consent, including sensitivity to individual rights.

6. Identify the processes by which decisions are made within an organization or agency and their points of influence.

This reflects:

a. identification of organizational structure and its relevance to the decision-making process
b. identification of stakeholders and their interests
c. determination of decision makers and their influence, perspectives on the issues, and style of decision making
d. communication of findings to appropriate audiences.

7. Identify and coordinate the integrated use of available resources to improve the community's health.

This reflects:

a. assessment of resources needed for a health program and methods to obtain resources not currently available
b. development of a plan for the health program negotiating with community elements and groups, and using consensus building and a team approach
c. coordination and implementation of the negotiated plan
d. evaluation of health program outcome through use of predetermined measurable criteria.

BIOSTATISTICS/EPIDEMIOLOGY

1. Characterize the health of a community.

This reflects:

a. assembly and review of existing data, including census, vital statistics, health care/public health, and law enforcement
b. analysis and interpretation of information based on the above data
c. validation and justification of methods, noting limitations
d. review of relevant literature
e. further investigation as needed
f. reporting to community, including recommendations.

2. Design and conduct an epidemiologic study.

Study includes:

a. definition of problem
b. collection and review of background information
c. selection and application of appropriate data collection and management methods and biostatistical techniques
d. implementation of protocol as designed
e. interpretation of results
f. identification of study limitations
g. formulation and dissemination of conclusions and recommendations.

3. Design and operate a surveillance system.

Surveillance system reflects:

a. determination and documentation of rationale and feasibility of surveillance
b. operational definition of case and identification of appropriate data sources
c. use of appropriate surveillance tools (e.g., screening, lab reports, vital records)
d. analysis and use of data generated
e. evaluation of the sensitivity and specificity of a surveillance system.

4. Select and describe limitations of appropriate statistical analyses as applied to a particular data set.

Description reflects:

a. identification and documentation of data set characteristics
b. appropriate use of statistical methods.

5. Translate epidemiologic findings into a recommendation for a specific intervention to control a public health problem.

Recommendation reflects:

a. demonstration of critical review of literature on a specific preventive medicine issue
b. identification of data on which findings were based
c. application of epidemiologic principles
d. identification of operational limitations and realities
e. development of practical intervention strategies
f. presentation of findings to decision makers.

6. Design and/or conduct an outbreak and/or cluster investigation.

This reflects:

a. application of epidemiologic principles
b. identification of unusual occurrences of disease, injury, or other adverse health conditions
c. management of acute situation as appropriate
d. recommendation of control measures
e. communication of findings to appropriate audiences.

MANAGEMENT AND ADMINISTRATION

1. Assess data and formulate policy for a given health issue.

Policy reflects assessment of:

a. need
b. interest of stakeholders (including but not limited to vested, public, and professional interest groups)
c. current scientific evidence
d. legal/regulatory requirements
e. resource constraints
f. costs and benefits.

2. Develop and implement a plan to address a specific health issue or problem.

Plan includes:

a. definition of issue or problem
b. needs assessment
c. goals and objectives with measurable outcomes
d. well defined, realistic, measurable, and specific tasks and activities related to goals and objectives
e. proper involvement and consultation with responsible parties including implementation authority
f. accurate assessment of fiscal and personnel resources and time requirements
g. marketing plan developed and incorporated
h. evaluation strategy for the plan.

3. Conduct an evaluation or quality assessment based on process and outcome performance measures.

Evaluation reflects:

a. definition of appropriate performance measures to assess progress in achieving goals and objectives
b. where indicated, performance measures relate to health status and are conducive to epidemiologic evaluation
c. performance measures are compared before and after the implementation of a plan or intervention
d. analysis should lead to meaningful conclusions and to recommendations for change, where indicated.

4. Manage the operation of a program or project, including human and fiscal resources.

This reflects appropriate use of:

a. organization documents (e.g. a table of organization) that specify responsibilities for accomplishing the program
b. human resource management, including personnel job classifications needed
c. budget management, including developing a line item budget that delineates human and other resources to be used
d. milestone tracking system or work plan that specifies time allocated to accomplish the program as well as the results of the effort
e. relationships among the organization and federal, state, and local public, private, and voluntary organizations with which the agency interacts.

CLINICAL PREVENTIVE MEDICINE

1. Develop, implement, and refine screening programs for groups to identify risks for disease or injury, and opportunities to promote wellness.

Development/implementation/refinement reflect:

a. characterizing the population to identify target conditions
b. assessing the utility of screening tools
c. assessing the screening programs using WHO or similar standards
d. assessing resources
e. creating structures (clinic staffing, etc.)
f. monitoring program effectiveness
g. reporting results appropriately.

(Competency is reflected by application of Clinical Preventive Services Task Force Guidelines and other recognized guidelines).

2. Design and implement clinical preventive services for individuals.

Design and implementation reflect:

a. conducting risk assessment
b. providing screening and counseling services
c. providing chemoprophylaxis (immunization, prophylaxis for TB).

3. Implement community-based interventions to modify or eliminate identified risks for disease or injury and to promote wellness.

Implementation reflects:

a. characterizing the population to identify target conditions and effective interventions
b. assessing the effectiveness of interventions, based on behavioral, environmental, and occupational factors
c. monitoring groups to implement interventions
d. monitoring program effectiveness.

4. Diagnose and manage diseases/injuries/conditions in which prevention plays a key role.

Diagnosing and managing reflect:

a. identification of diseases/injuries/conditions in which prevention plays a key role
b. diagnosing diseases/injuries/conditions in which prevention plays a key role
c. managing and referring diseases/injuries/conditions in which prevention plays a key role
d. preventing and controlling exposures to diseases/injuries/conditions in which prevention plays a key role.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

1. Assess individual risk for occupational/environmental disorders using an occupational and environmental history.

Competent assessment reflects:

a. obtaining brief as well as comprehensive patient histories, accurately and with an emphasis on occupation and exposure
b. recognizing the potential relationship between patient symptoms and occupational and environmental exposures
c. identifying occupational/environmental illnesses and injuries with the appropriate use of consultants in related disciplines
d. reporting findings to affected individuals and appropriate organizations, advocating for the health and safety of patients and employees, as well as the interests of employers and other stakeholders
e. intervening to mitigate occupational and environmental risk, promoting health and safety of the patient, the workplace, and the community
f. evaluating the effectiveness of prescribed interventions.

2. Identify occupational and environmental hazards, illness, and injuries in defined populations, and assess and respond to identified risks.

Identification and response reflect:

a. characterizing existing and potential occupational and environmental hazards within the defined population
b. recognizing the health effects of toxic chemicals and other occupational and environmental exposures
c. identifying sources and routes of environmental exposures, and recommending methods of reducing environmental risk
d. evaluating the effectiveness of risk reduction methods
e. utilizing occupational and environmental information resources to conduct a literature search or to research the health effects of a chemical substance.

Future Needs and Directions

Work has begun on updating the competencies in the specialty areas of preventive medicine. When the general preventive medicine/public health program directors met to consider updating specialty competencies, the program directors in public health decided to develop additional competencies specific to the field of public health. A subgroup of public health program directors has initiated this process.

The American College of Occupational and Environmental Medicine (ACOEM) has begun a process to develop occupational and environmental medicine competencies for several uses in the practice of occupational medicine. Although the ACOEM competencies were originally developed for residency training, they evolved into a broader set of competencies that include not only minimum training expectations, but also expectations for any occupational physician as well as highly specialized competencies for particular settings. Cross-referencing the ACOEM list[4] and the ACPM/HRSA core competencies will help maximize awareness and use of these complementary documents.

The program directors of the three preventive medicine residency programs devoted to aerospace medicine agreed to update the specialty area competencies in aerospace medicine. This updated version was subsequently submitted for publication.[5]

Version 2.0 of the core competencies incorporates some changes in both the competencies and the performance indicators. Two competencies were added to the original set: "Characterize the health of a community" (Biostatistics / Epidemiology #1) and "Design and implement clinical preventive services for individuals" (Clinical Preventive Medicine #2). These additions perhaps reflect both awareness of the increasing importance of population-based medical skills and the need for clinicians with expertise in the provision of clinical preventive services to individuals, in the future health care system. No competencies in the original set were deleted in Version 2.0. In several instances, two related competencies from the first version were combined to form one broader statement. For example, the original set separated communication skills involving health

professionals from communication skills involving other target groups; the revised competencies combine the two into one more general communications competency.

Other differences between the original set and Version 2.0 are apparent in the performance indicators. Four performance indicators in occupational and environmental health were changed to more closely parallel the specialty area competencies recently developed by the ACOEM.[4] Some additions reflect changes in technology since 1994, the date the original competencies were published. The ability to access information through the Internet, for instance, has become a necessary skill for preventive medicine residents during the intervening years.

We believe the process of revisiting the core competencies to reassess their merit and to keep them current is essential in order to assure suitable preparation of preventive medicine specialists for their future practice. Overall, however, the changes between the original competencies and Version 2.0 are not extensive. This outcome represents a reaffirmation of their appropriateness and durability and confirms an enduring consensus with the field.

It is hoped that Version 2.0 of the core competencies will help residency program directors and practicum supervisors identify gaps in the learning opportunities their programs provide, ensure balance in their program offerings, and structure new practicum experiences. Giving the competencies to residents as they begin their training will help them focus on what they need to achieve during their training. The competencies should also help potential employers identify what they can expect of a graduate of a preventive medicine residency program. Outcomes assessment of residency training is now strongly advocated for all specialties of medicine by the ACGME.[5] Clearly delineated competencies and performance indicators provide the tools for accomplishing this within educational training programs. The preventive medicine competencies and the process used in their development are now serving as a model for other specialties to emulate, another positive outcome of the HRSA/ACPM collaboration.

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The views expressed in this article are strictly those of the authors. No official support or endorsement by the State University of New York or the US Department of Health and Human Services or any of its components is intended; nor should any be inferred.

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Appendix B

Capstone Project Titles and Examples

Past Student Capstone Committees and Titles

Entering 2014

Student	*Committee Members*	*Title*
Alloway, Taylor	Susan Weller Christine Arcari Miriam Mutambudzi	Smartphone Application Interventions to Increase Weight Loss: A Systematic Review
Animadu, Page	Sharon Croisant Sreenivas Veeranki Juliet McKee	Depression and Teenage Pregnancy in Galveston Independent School District High School Students
Chesson, Brent		
Dong, Julia	M. Kristen Peek Bret Howrey Heidi Spratt	The Impacts of Mindfulness-Based Interventions on the Well-being of Cancer Survivors: A Systematic Review
Han, Wei		
Johansen, Benjamin	Tarah Castleberry Rebecca Blue Christine Arcari Erik Antonsen	Point-of-Care Ultrasound for Pulmonary Concerns in Remote Spaceflight Triage Environments
Kulkarni, Kay		
Miller, Magda		
Mulcahy, Robert	Tarah Castleberry Christine Arcari James Vanderploeg	Screening and Mitigation of Anxiety in Unique Environments
Mulgrave, Pierre	John Prochaska Daniel Jupiter Christine Arcari	Food Allergy Risk Mitigation in Texas Independent School Districts
Robbins, Esther	John Prochaska Christine Arcari Miriam Mutambudzi	A Secondary Analysis of County Health Statistics for the Galveston County of Texas Report

Entering 2013

Student	*Committee Members*	*Title*
Anyama, Best	Jacques Baillargeon Christine Arcari Gary Seale	Traumatic Brain Injury Intervention in Texas Youth Athletes: A Systematic Literature Review
Chondronikola, Maria	Susan Weller Labros S. Sidossis Christine Arcari	Variation Among Clinical Specialties In Perceptions Of Pediatric Burn Patient Needs: A Feasibility Study
Chough, Natacha	Tarah Castleberry Ronak Shah Christine Arcari Jennifer Law	Development of a NASA Flight Surgeon Quick Reference Guide and Evaluation of the International Space Station Medical Kit: A Model for Resource-Limited Populations
Cochran, Ernest	Laura Rudkin Cynthia Judice Mukaila Raji	Integrated Behavioral Healthcare at UTMB: A Cost/Benefit Study
Flores, Abel	Christine Arcari M. Kristen Peek Bret Howrey	Proposing a Model School-Based Childhood Obesity Prevention Program for Cuero, TX, A Rural Underserved City
Newsome, Eli	Christine Arcari John Phelps, III M. Kristen Peek	The Costs of Complying with American Society of Reproductive Medicine Guidelines for Providing Infertility Services to Patients Infected with HIV
Osborne, Candice	Kenneth Ottenbacher Walter Meyer Christine Arcari	Burn Injury Patients' Return to Daily Activity and Participation as Defined by the International Classification of Functioning, Disability and Health: A Systematic Review.
Panas, Lawrence J.	John Prochaska Karl Eschbach Jacques Baillargeon	The Effect of Demographic and Areas Effects on Mortality for Hispanics and non-Hispanics in Texas, 2000 to 2010

Parker, Aisha	Sharon Croisant Christine Arcari Ruth Levine	The Psychological Ramifications of Disaster
Paschall, Sean	M. Kristen Peek Laura Rudkin Danny Jacobs	Chronic Pain and the Prescription Opioid Overdose Epidemic: Addressing Provider Attitudes and Concerns
Pham, Khoa	John Prochaska M. Kristen Peek Christine Arcari	Basic Food Item Prices Between High Food Access Areas and Food Desert Areas in Galveston, Texas
Wynne, Karon	Christine Arcari Gary Seal Jacques Baillargeon	A Review of Associations Between Traumatic Brain Injury (TBI) & Addiction and Potential Therapeutic Interventions For Addiction In The Brain Injured Population

Entering 2012

Student	*Committee Members*	*Title*
Bennett, Alina	Jacques Baillargeon Christine Arcari Jason E. Glen	Evaluating the Felony Mental Health Court of Harris County, Texas
Chung, C. Yvonne	Melanie de Boer William Mileski Christine Arcari	Differences in Pediatric Unintentional Injury Outcomes by Race / Ethnicity
Clark, Seth	Melanie de Boer Matthew Dacso Christine Arcari	Development and Implementation of a Sustainable Monitoring and Evaluation Protocol for a Malnutrition Rehabilitation Program in a Resource-Limited setting
Connolly, Joseph	Jacques Baillargeon Christine Arcari Yong-Fang Kuo	Predictors of Prolonged Opioid Use Following Lumbar Fusion
Esani, Muneeza		

Entering 2011

Student	*Committee Members*	*Title*
Blue, Rebecca	James Vanderploeg Christine Arcari Jon Riccitello	Commercial Spaceflight Participant G-Force Tolerance During Centrifuge-Simulated Suborbital Flight.
Calderon, Veronica	Glen Mayhall Christine Arcari Melanie de Boer	Tuberculosis: Epidemiology, Diagnosis, Treatment, Prevention and Control in the United States and Worldwide
Cushman, James	Richard Jennings Joseph Dervay Christine Arcari	On Being a NASA Flight Surgeon
Darrow, David	Karl Eschbach John Thomas Christine Arcari	Community Gardening for the Health Advocate
Grant, Ashley	Melanie de Boer Christine Arcari Allan Barrett	Epidemiology and Countermeasure for Viral Hemorrhagic Fevers
Hoverstadt, Phillip	Kirk Smith Christine Arcari Belinda Reininger	The Incorporation Of Preventative Medicine Strategies Through The STAR+PLUS Program In The State Of Texas
Karmarkar, Amol	Kenneth Ottenbacher Christine Arcari James E. Graham	Impact of Diabetes Comorbidity on Health Outcomes in Patients Undergoing Medical Rehabilitation after Lower Extremity Joint Arthroplasty
Kumar, Amit	Soham Al Snih Kenneth Ottenbacher Rebeca Wong James E. Graham	The Effect of Obesity on Disability and Mortality in Mexican Older Adults
Kwatampora, Lily	James Baillargeon Melanie de Boer Philip Keiser	HIV Prevention Strategies In U.S. Prisons: A Systematic Literature Review

Mathers, Rachel	John Fraser Laura Rudkin Charu Sawhney Richard Andrews	Development and Implementation of a Health Literacy Program in a Community Primary Care Clinic in Houston, TX
Morales, Melissa	Sharon Croisant Christine Arcari John J. Fraser	A Social Media Intervention to Disseminate Health Information to High School Students at Ball High School in Galveston, Texas
Pattarini, James	Tarah Castleberry Jonathan Clark Christine Arcari	Flat Spin and Negative Gz in High-Altitude Free Fall: Pathophysiology, Prevention and Treatment
Patterson, Michael	Christine Arcari James LeDuc Melanie de Boer	A Review of the Government Sponsored Offensive Biological Programs, Weaponized Biological Pathogens and their FDA Approved Countermeasures
Rodriguez, Ana	Catherine Cooksley Christine Arcari James Goodwin	Utilization of BRCA testing in older women with breast and/or ovarian cancer

Entering 2010

Student	*Committee Members*	*Title*
Basraon, Jaswant	Christine Arcari Laura Rudkin Karl Eschbach	Organ Donation in the United States
Beauregard, Wesley	Melanie de Boer Daniel Freeman Alan Barrett	West Nile Virus Vaccination: Current threats and Future Considerations
Fondy, Susan	Laura Rudkin Sharmila Watkins Jean Freeman	Medical Constraints in Spaceflight: Venturing Beyond Low Earth Orbit
Guzman, Yvette	Christine Arcari Laura Rudkin John Fraser, Jr.	Compilation and Determination of Potential Occupational Exposures in the Work Place – U.S. Coast Guard (Marine Safety Unit, Air Station Unit) Galveston, Texas
Law, Jennifer	James Vanderploeg Smith Johnston John Fraser, Jr.	Development of an Emergency Medical Services Plan for Commercial Space Flights in Spaceport America
Menon, Anil	James Vanderploeg Richard Cole John Fraser	Medical Kits for Commercial Space Flight Based on Existing Analogs

Entering 2009

Student	*Committee Members*	*Title*
Lewis, Leigh	Richard Jennings James Vanderploeg Jonathan Clark	Measurement of Accelerations Experiences by Aerobatic Pilots
Vaughan, Elizabeth	Victor Reyes, M.D. Harvey Bunce,Ph.D. Christine Arcari, Ph.D.	Nutritional Status of Patients with HIV/AIDS: Interrelationship between Percentage Kilocalories and Protein needs met and the immune system in adult HIV/AIDS patients in Africa
Basraon, Sanmaan	Christine Arcari Laura Rudkin Maged Constantine	Oligohydramnios diagnosed by incorporation of horizontal pockets to measurement of Amniotic Fluid Index, as a predictor of adverse neonatal outcomes in low risk pregnancies at term gestation
Murray, Daniel	Richard Jennings Christine Arcari Jonathan Clark	Ebullism: Planning Prevention and Treatment in Space Flight Participation
Purohit, Kalpesh	Richard Jennings Daniel Freeman Smith L. Johnston	Developing Individualized Ground Testing Protocols for Use of Sleep Medication in Spaceflight

Samsey, Kathleen	John Fraser Christine Arcari C. Joan Richardson	How Are We Preparing for Armageddon? Medical and Public Health Considerations in U.S. National Disaster Planning – The "All Hazards" Approach, from the National Incident Management System to the New National Health Security Strategy
Shah, Ronak	James Vanderploeg John Fraser, Jr. Sharmila Watkins	Sensorimotor Disturbances in Astronauts Following Space Flight: Causes, Evaluation, and Countermeasures
Trant, David	Christine Arcari Susan Weller Karl Eschbach	Undetermined Natural Causes: Do Physicians Code or Uncertainty In Cause of Death?
Venezia, John	John Thomas Laura Rudkin Richard Rupp	School-based Telemental Health at the University of Texas Medical Branch: A compilation and Design of a Standard Operating Procedures Manual
Watto, Michael	M. Kristen Peek Gerald Cleveland Laura Rudkin	General Physical Preparedness of Emergency and Essential Personnel
Farr, N. Miles	Laura Rudkin Susan Gerik Elizabeth Reifsnider	Interprofessional Community Service-learning Elective Course Development
McQuade, Katherine	Christine Arcari Philip Keiser Susan Weller	Development of a TB program evaluation tool for resource limited setting
Lee, Jung J.	Laura Rudkin Jean Freeman Cassandra Arceneaux	Evaluation and Improvement of Breast Cancer Screening Program at Galveston County Health District

Entering 2008

Student	*Committee Members*	*Title*
Maltz, Ashley	Susan Weller Michael Boyars Kathryn Fiandt	Development of a Pain Management Policy in an Indigent Primary Care Clinic in Galveston, TX
Mathers, Charles	Richard Jennings James Vanderploeg Jonathan Clark	Measurement of Accelerations Experienced by Rough Stock Riders: A Model for Examining Acceleration-Induced Head Injuries in Astronauts
Shaskan, Gregory	Richard Jennings Dan Freeman Melchor Antunano	2007 Homebuilt/Experimental Accident and Fatality Rates Compared to Non-Homebuilt General Aviation Aircraft
Strobel, Jonathan	Laura Rudkin Dan Freeman Ruth Levine	Media Induced Anxiety in the Active Duty Medical Clinic Setting
Stinson, Jonathan	Christine Arcari Laura Rudkin Miriam Alter	Acute/Febrile Respiratory Illness Aboard Ships in the US Navy

Entering 2007

Student	*Committee Members*	*Title*
Cole, David	Laura Rudkin Jean Freeman Bret Simon	Treatment Programs for Alcoholism in Native Americans
Cole, Richard	Richard Jennings Strahil Atanasov James Vanderploeg	Effect of Zaleplon, Zolpidem, and Ramelteon on Cognitive Functioning after Awakening from Napping
Gaydos, Steve	Laura Rudkin Nelson Avery Alvah Cass	Taser Subjects: Identification of High-Risk Individuals
Gray, Jon	Laura Rudkin Dana Beckham Elizabeth Reifsnider	A Survey of Obesity-Related Programs in Galveston County Schools

Hyland, Greg	Robert Johnson LaDale St. Clair Randal Reinertson	Diabetes Mellitus in US Aviators: Identification of Risks and Emphasis on Prevention
Jacques, Mark	Robert Johnson Richard Jennings Prashanth Sunkureddi	Gout: An Aeromedical Clinical Practice Guideline for the Management and Treatment of this Disease
Powell-Dunford, Nicole	Robert Johnson Richard Jennings James Vanderploeg Janice Smith	Dysmenorrhea: An Aeromedical Clinical Practice Guideline
Sawhney, Charu	Kirk Smith Susan Weller Sister Phylis Peters Laura Rudkin	Socios para de Salud – A Program Evaluation of a Community Based Health Education Program (CBHEP) and its Effects on Health Outcomes in a Minority, Mexican-American Population

Entering 2006

Student	*Committee Members*	*Title*
Barr, Yael	Sheryl Bishop Robert Johnson Juan Olano	The Risk and Management of Breast Cancer for Space Exploration
Grant, R. Josh	Billy Philips Gerald Cleveland Deborah Carlson	Can Physical Exercise Adversely Influence Hearing Loss Resulting from Hazardous Hearing Levels of Music or Noise?
Hoefer, Matthew	Billy Philips Dana Wiltz-Beckham Thomas Hughes	Prevention of Childhood Drowning: A Review of Current Community Interventions and their Effect on Recreational Drowning Mortality in Children
Johnson, Jon	Robert Johnson Dan Freeman John Fraser	Playground Safety in Galveston Parks: A Descriptive Analysis
Lamb, Steve	Laura Rudkin Jonathan Ward Wayne Snodgrass	Childhood Lead Poisoning Prevention: A Program Plan for Galveston County
Lindgren, Kjell	Robert Johnson Sheryl Bishop John Fraser	Air Show Medical Support
Lollis, Blake	Robert Johnson James Phelan Francis Quinn	Barotraumatic Sinusitis and Rhinosinusitis : Risk Mitigation, Prevention, and Treatment Strategies
Martinez, Carlos	Edilma Guevara Dan Freeman Elizabeth Anderson	A Comparison of Participants Who Provided Serum Samples and Participants Who Declined to Donate Blood for Stress Biomarkers in a Population-based Survey in Texas City, Texas
McKnight, Techksell	Laura Rudkin Navkiran Shokar Susan Weller	The Effects of Provider-Patient Relationship in African Americans Acceptance of CRC Screening Recommendations and/or Utilization of Colorectal Cancer Screening: A Systematic Review
Riccitello, Jon	Sheryl Bishop Gary Kesling Jerry Baskerville	'ICE' Awareness Among Local EMS Personnel
Rodriguez, Edgar	Edilma Guevara Kirk Smith David Walker	Need for Testing U.S. Blood Supplies for T. Cruzi
Taylor, Neal	Laura Rudkin Dana Wiltz-Beckham Elnora Mendias	Analysis of Post-Katrina, Texas City, Temporary Shelter, Medical Facility
Walker, Harlan	Sheryl Bishop Richard Jennings Robert Ryan	Reducing Pilot Error Mishaps and Fatalities
Watkins, Sharmila	Robert Johnson Nelson Avery Jonathan Clark	Measurement of Accelerations Experiences by Rough Stock Riders

Entering 2005

Student	*Committee Members*	*Title*
Arceneaux, Cassandra	Laura Rudkin Susan Weller Kathleen Nash	Collaboration Between Faith Based Organizations and the Medical Community on Adolescent Reproductive Education
Aunon, Serena	Richard Jennings Ronita Cromwell Judith Drew	Artificial Gravity: Applications Beyond NASA
Davenport, L. Andy	Sheryl Bishop Robert Johnson Nitza Cintron	Design and Implementation of the Pilot Physician Program for the U.S. Air Force – Air National Guard
Hall, Katrina	Laura Rudkin M. Kristen Peek Elizabeth Reifsnider	Community Based Approaches to Decrease Adolescent Obesity
Hollonbeck, Sean	Sheryl Bishop Richard Jennings Joan Richardson	Disaster Preparedness: An Organizational Leader's Guide to Fatigue and Countermeasure Solutions
Kerstman, Eric	Sheryl Bishop Robert Johnson Kathryn Cunningham	Cognitive and Psychomotor Impairment Related to the use of Opioid Analgesics to Treat Pain: An Assessment of the Effects of Driving and Occupational Activities
Phelps, Shean	Billy Philips Dan Freeman Cheyenne Martin	Airsickness Treatment and Prevention Recommendations Regarding Anti-emetics and/or Acustimulation
Webster, Thomas	Billy Philips Laura Rudkin Michael Ahearn	Skin Cancer Prevention Programs at the National Level: A Comparison between the United States and Australia

Entering 2004

Student	*Committee Members*	*Title*
Person, James	Billy Philips Sadagopa Ramanujam Thomas K. Hughes	Self-Contained Household Water Systems in Developing Countries
Rivero, Luis	Laura Rudkin Jean Freeman Kirk Smith	A Study of the 1993 Healthcare Reform in Puerto Rico
Romine, David	Sheryl Bishop Gerald Cleveland Elizabeth Anderson	An Introduction to the Intersection of the Built Environment and Public Health
Taylor, John	Sheryl Bishop Edilma Guevara Ernestine Cuellar	Exploring Barriers to Diabetes Screening in Women of Mexican Heritage
Toole, Theron	Laura Rudkin Susan Weller Courtney Townsend	Body Mass Index is a Critical Vital Sign
Trollman, Christopher	Billy Philips Richard Jennings Johnny Peterson	Bioterrorism in Commercial Air Travel: Overview of Threat and Detection Methods

Entering 2003

Student	*Committee Members*	*Title*
Ashley, Bradford	Sheryl Bishop Richard Jennings Ernest Barratt	Requiring Computerized Neurocognitive Assessment of Pilots Being Treated with Antidepressant Medication
Birchfield, Patrick	Sheryl Bishop Martin Myers Wayne Snodgrass	Interstate Differences in Weapons of Mass Destruction Civil Support Teams
Chamberlain, Blake	William Au Tufail Shaikh James Leary	An Intuitive Radiation Protection Index
Kotwal, Russ	Clarence Jernigan Dan Freeman John Heggers	A Novel Pain Management Strategy for Combat Casualty Care during Operation Iraqi Freedom
McClellan, Scott	Sheryl Bishop Tufail Shaikh Scott Lillibridge	Responding to the Severe Acute Respiratory Syndrome (SARS) Pandemic of 2002-2003: A Comparative Account of Public Health Strategies in Canada, China, Singapore, Vietnam, and the United States
Moynihan, Shannan	Tufail Shaikh Richard Jennings Anne Hudson Jones	Pre-hospital Aeromedical Transport Criteria for Trauma Patients in Texas
Patni, Shamim	Laura Rudkin David Rassin Elizabeth Anderson	Comparison of State Health Policies on School Food Service Programs in their Efforts to Control the Childhood Obesity Epidemic
Salmon, Scott	Sheryl Bishop Victor Sierpina Kenneth Johnson	Recommendations for Increased Surveillance of Ephedra-containing Supplement Usage in Military and Athletic Organizations

Entering 2002

Student	*Committee Members*	*Title*
Bradshaw, Bascom	Sheryl Bishop Jean Freeman Michael Malloy	A Review of Medical Error Education in Osteopathic Undergraduate Medical Education
Gatlin, Alan (Dale)	Sheryl Bishop Clarence Jernigan Edward Brooks	Should Army Aviators be Allowed to Fly with Well Controlled Mild to Moderate Asthma?
Langell, John	Jonathan Ward Richard Jennings Jonathan Clark	Pharmacological Countermeasures for the Prevention and Treatment of Toxic Radiation Exposure in Space Flight
Pall, Vishal	Tufail Shaikh Douglas Watts Clarence Peters	Use of Ribavirin for Treatment of Viral Hemorrhagic Fever in the Context of Bioterrorism
Roller, Richard	Richard Jennings Clarence Jernigan Ahmed Ahmed	Pharmacological Treatment of Hypertension in Military Aviators
Sybert, Troy	Billy Philips Jean Freeman B. Mark Evers	Observations on Colorectal Cancer Screening in the Hispanic Population

Entering 2001

Student	*Committee Members*	*Title*
Cho, Won-suk	Laura Rudkin Jean Freeman Harold Drayton	Effect of Income Inequality on Population Health
Ferrell, Bethany	Jean Freeman Nelson Avery Michele Carter	The Role of Media in Eating Disorders
Gilmore, Stevan	Sheryl Bishop Jeff Davis Michele Carter	Genetic Screening and the Space Work Environment: An Assessment of the Ethical Considerations Regarding the Implementation and Use of Genetic Screening at NASA
Harris, Frederick	Jean Freeman Laura Rudkin Gayle Weaver	Potential Impact of Graduated Licensing for New Teenage Drivers in Texas
Herrera, David	Clarence Peters Robert Shope Wayne Snodgrass Bruce Niebuhr	An Educational Curriculum on Anthrax as a Representative Agent for Bioterrorism Preparedness for Emergency Medicine Physicians and Emergency Medical Services Providers
Lang, Gregory	Robert Shope Glenn Mayhall Ralph Morris	Electronic Reporting of Laboratory Surveillance Data Within the Military Health System
Mandayam, Sreedhar	Tufail Shaikh Billy Philips Thomas Blackwell	Clinical Epidemiology for Internal Medicine Residents
Patton, Thomas	Nelson Avery Richard Jennings Robert Johnson Billy Philips John Fraser	Survey of Hospitals and Healthcare Facilities in the State of Texas for the Medical and Environmental Response Readiness to an Act of Bioterrorism
Stabile, Jonathan	James Hokanson Nelson Avery Cheryl Vaiani	Vaccine Refusal Rationalizations and Ramifications

Entering 1997-2000

Student	*Committee Members*	*Title*
Alailima-Utu Hall, Sarah	Tufail Shaikh Kristen Peek Ronald Carson	Barriers to Healthcare Access: A Study of Galveston County
Arenare, Brian	Richard Jennings Sheryl Bishop Jon Mader	Strategies for the Prevention and Management of Eva-related Decompression Sickness on the International Space Station
Bacal, Kira	Sheryl Bishop Francis Quinn Golda Leonard	Potentially Disabling Neurovestibular Symptoms Experienced Following Space Flight: Identifying a Syndrome
Brady, Charles	James Hokanson Sheryl Bishop James Leary	Study of the Reliability of High Frequency Radio Communications in an Extreme Environment
Chao, Grace	James Hokanson Tufail Shaikh Michele Carter	Study of Hepatitis C Management in Jester III Unit
Dervay, Joseph	Clarence Jernigan Richard Jennings Clarence Peters	Analysis of Aspects of Health Care Delivery and Safety for Space Tourism and Space Passengers
Liu, Hanlin	Nelson Avery Tufail Shaikh Robert Shope	Multiple Approaches for Improving Childhood Immunization Among Galveston County Indigent Population
King, Ronald	James Hokanson Nelson Avery Golda Leonard	Public Health Guidelines for Noise Control
Roden, Sean	Sheryl Bishop Melchor Antunano Ronald Carson	Flight and Duty Time Limits for Commercial Aerospace Crew Members
Schmid, Josef	Clarence Jernigan Billy Philips Michele Carter	A Recommendation to the Galveston County Indigent Health Care Task Force to Improve the Indigent Patient Medical Informatics System: The Use of Electronic Referrals and Records
Stepanek, Jan	Richard Jennings Sheryl Bishop Gold Leonard	Influence of Hypobaric Hypoxia on the Human Sense of Smell
Tokumaru, Osamu	Sheryl Bishop Richard Jennings Jiande Chen Peter Ernst	Effects of Acupressure on Gastric Myoelectrical Activity in Humans
Walls, George	Nelson Avery Tufail Shaikh Faiyaz Bhojani	Hypertension and the Department of Transportation
Woodson, Justin	Richard Jennings Billy Philips Bruce Niebuhr	Planning Healthcare for the Medically Uninsured

Breast Cancer and Spaceflight: Risk and Management

By

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Breast Cancer and Spaceflight: Risk and Management

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BARR YR, BACAL K, JONES JA, HAMILTON DR. *Breast cancer and spaceflight: risk and management.* **Aviat Space Environ Med 2007; 78(4, Suppl.):A26–A37.**

Spaceflight exposes astronauts to a host of environmental factors which could increase their risk for cancer. Epidemiological studies have shown an increased incidence of breast cancer in female commercial flight attendants, with occupational risk factors as one of the proposed mechanisms for the higher incidence in this cohort. Since female astronauts are exposed to similar occupational conditions as flight attendants, they too may be at an increased risk for breast cancer. With the planning of exploration class missions to the Moon and to Mars it is important to assess and minimize the risk for breast malignancy, and to have a well-defined protocol for the diagnosis and treatment of a breast mass discovered during a mission. Risk factors for development of breast cancer in the female astronaut include ionizing radiation, disrupted melatonin homeostasis secondary to circadian shifting, chemical exposure, and changes in immune function. Preflight, in-flight, and postflight screening and management modalities include imaging and fine needle aspiration (FNA). Employing such a strategy may provide a viable management approach in the case of a newly diagnosed breast mass in-flight.

Keywords: fine needle aspiration, FNA, spaceflight, radiation.

THE SPACEFLIGHT environment subjects astronauts to increased risk of delayed health effects, such as cancer. Among female astronauts it is speculated that this increased cancer risk will manifest itself with a predominantly greater occurrence of hematological malignancies as well as solid organ cancers of the breast, ovary, and thyroid gland (16,112). Of the solid organs, the breast is expected to be at highest risk due to its relatively larger tissue mass, hormonal responsiveness, and degree of radio-sensitivity.

The small population of women who have flown in space is not large enough to draw statistically significant conclusions regarding the possible incidence of spaceflight-related health effects, including breast cancer. Yet with the steady increase in the number of female astronauts, the long duration of space station missions, and the planning for longer duration flights to the Moon and to Mars, it is important to understand the risk for breast malignancy in female astronauts, as well as to have a well-defined protocol for the diagnosis and treatment of a breast mass discovered in-flight. It is thus necessary to extrapolate data from other cohorts with similar occupational exposures, such as flight attendants. Epidemiological studies conducted in recent years have noted an increased incidence of breast cancer in female commercial flight attendants and most theories have linked this finding to occupational risk factors. The spaceflight environment, though far more hazardous than that found in commercial aircraft, exposes female astronauts to many of the same occupational risk factors as those found in atmospheric flight, suggesting that female astronauts may indeed be at an increased risk for breast cancer.

The importance of considering breast cancer in female astronauts venturing into space is highlighted by two previous breast cancer occurrences in the remote analogue environment of Antarctica (23,68). The famous of the two is the account of Dr. Jerri Nielsen (68), who served as the only physician at the Amundsen-Scott South Pole Research Station, in 1999. Isolated in the remote environment of Antarctica for many months, much like astronauts during an exploration class space mission, she none-the-less successfully used fine needle aspiration (FNA) to diagnose a newly developed breast mass as malignant. Non-medical personnel stationed with her, ice for anesthetic, and telemedicine links to remote specialists aided her in this endeavor. Using supplies dropped by an airplane, Dr. Nielsen underwent treatment while waiting for the summer season when evacuation was possible. In this, Dr. Nielsen was more fortunate than a female astronaut might be on an exploration class mission, where additional supply ships are unlikely to be available. Without advanced planning, a new onset breast mass on an exploration mission could have significant impact on both the survivability of the affected crewmember as well as on the morale of the rest of the crew and the overall mission success.

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Effect of Zolpidem, Zaleplon, and Ramelton on Cognitive Functioning after Awakening from Napping

Publication No._____

Richard W. Cole, M.D.

The University of Texas Medical Branch, 2008

Supervisor: Richard Jennings, M.D., M.S.

Non-benzodiazepine sedative hypnotics and melatonin receptor agonist hypnotics induce the onset of sleep and are primarily prescribed for the treatment of insomnia. Although, non-benzodiazepine sedative hypnotic drugs zaleplon (Sonata) and zolpidem (Ambien) are not chemically like benzodiazepines, they induce sleep by binding to the same gamma-aminobutyric acid (GABA) receptors in the central nervous system. They may be less likely than benzodiazepine medications to disrupt natural sleep rhythm and patterns which may make sleep more restful. Ramelteon (Rozerem) is a new category of sleep medications that bind to the melatonin receptor in the suprachiasmatic nucleus.

Cognitive performance following a "full night's" rest after taking these medications has been more thoroughly studied than performance decrements should return to duty be required. These hypnotics may be used to induce sleep in circumstances not ideal for rest (shift work, noisy environment, short period available during the day,

etc.). Because these three drugs have a rapid onset and short half-life (one hour for zaleplon, 2.5 hours for zolpidem and 2.5 hours for ramelteon), they have the potential to be utilized in individuals that need assistance with sleep latency, but might need to wake up before a "full night's" rest to perform critical tasks.

This project reviews the literature regarding the effectiveness of zaleplon, zolpidem, or ramelteon in inducing sleep and the effects on cognitive functioning and performance decrements within eight hours after use.

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TASER SUBJECTS: Identification of High-Risk Individuals

Publication No._____

Steven J. Gaydos, MD, MPH

The University of Texas Medical Branch, 2008

Supervisor: Laura Rudkin

Taser® devices are used by many police forces as a nonlethal means of subduing individuals. These devices use conducted electrical energy to cause neuromuscular incapacitation. Tasers have been associated with adverse clinical outcomes and death, and their use remains controversial. Current national level policing policies exhibit heterogeneity with respect to the clinical disposition of individuals subjected to Tasers. Critical review of the published medical literature concerning the human effects of Tasers suggests the delineation of certain groups potentially more vulnerable to adverse medical outcome and injurious clinical sequela. Policy changes mandating that these "high-risk" groups receive clinical evaluation post-incident may increase public safety with respect to Tasers.

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VITA **47**

CAN PHYSICAL EXERCISE WORSEN THE HEARING LOSS CAUSED BY HAZARDOUS LEVELS OF MUSIC OR NOISE?

Publication No._____

Robert J. Grant, D.O.
The University of Texas Medical Branch, 2007

Supervising Professor Billy U. Philips, Jr

The increasing popularity of prolonged frequent exercise (aerobics, high and low impact) promises to decrease morbidity from sedentary life styles for young and old alike. However, the availability of easily portable, high volume, digital music systems, such as MP3s ™ and iPods ™, has made these devices a common accessory during exercise. There is little question that prolonged exposure to high volumes of noise or music can cause hearing loss. But, does exercise concurrent with the music exposure worsen the risk? Do temporary threshold shifts from exercise lead to permanent hearing loss or is it a transient phenomenon? What other physical and psychosocial factors relate to threshold shifts? A systematic search and narrative review was performed on the available literature about exercise and other related physical factors as they relate to hearing loss. The anatomy and physiology of hearing is reviewed. The research revealed conflicting results of studies small numbers of subjects, with some documenting a clinically small, but statistically significant, temporary threshold shift that was worse with exercise and noise, than with noise alone. Other studies, including the two most recent, failed to confirm these findings. Most of the studies were small of sample size and limited to young, healthy and fit individuals. Moreover, the exposures to noise or music were brief with low levels of exercise. Furthermore, the long term effect of continued, prolonged or repetitive music exposure has not been evaluated. Other studies, including the effect of vibration and high impact aerobics, have documented a significant negative effect on hearing. There is evidence that being very physically fit has a protective benefit against hearing loss from noise. The available evidence does not conclusively answer the question of whether exercise worsens hearing loss due to noise. There is, nevertheless, compelling evidence that the potential for synergistic hearing loss exists. Further studies are warranted, especially on older, less fit individuals, those who exercise frequently, excessively, and/or for prolonged periods. Public health concerns and risks should be actively advertised to the exercising public and limitations on noise levels in exercise facilities should be encouraged. Limitations on the maximum achievable MP3 ™volume should be encouraged.

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Survey of Obesity Related Programs

In Galveston County Public Schools: A Pilot Study

Publication No._____

Jon R. Gray, MD, MPH

The University of Texas Medical Branch, 2008

Supervisor: Laura Rudkin

Childhood and adolescent obesity has developed into a major public health concern in the United States. The overweight and obesity rates of our children continue to rise and have been increasing dramatically for over 40 years. The rising health concerns coupled with alarming increases in health care expenditures related to obesity has caused the government to take action. The goal of this Capstone is twofold: The first is to determine what the minimal requirements for public school programs related to obesity are as set by Texas State Law. The second is to explicate what the select population of Galveston County schools of interest is actually doing. Programs that will be included are those related to physical activity, physical and health education and nutrition. By identifying and cataloging current program use and implementation as well as examining laws and their execution in the population of interest, determinations can be made regarding efficacy of these statutes and programs as they pertain to obesity in school-aged children.

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GOUT: An Aeromedical Clinical Practice Guideline

Publication No._____

Mark L. Jacques, MD, MPH

The University of Texas Medical Branch, 2008

Supervisor: Robert Johnson

Through the completion of this capstone project, I am demonstrating the significance of gout in the United States of America, and in particular in the arena of aerospace medicine today. I have created a current clinical practice guideline that allows for the efficient delivery of excellent acute and long term care to flight personnel afflicted with gout. This guideline addresses diagnosis, management, follow up and prevention strategies for dealing with gout. Standardization of management of this disease throughout the aerospace community will have multiple benefits for flight personnel with gout, aeromedical practitioners and the general public.

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Interventions to increase colorectal cancer screening among African Americans: A systematic review

Publication No._____

Tecshkell Meshell McKnight, M.P.H.

The University of Texas Medical Branch, 2008

Supervisor: Laura L. Rudkin

Colorectal cancer (CRC) continues to affect African Americans disproportionately. Despite medical advances and widely accepted screening recommendations, African Americans are less likely to get appropriate CRC screening, and consequently, are more likely to die from colorectal cancer than their white counterparts. Appropriate communication between the patient and the provider and the need for increased patient education may be a part of the solution to this discouraging problem. Increasing provider education and cultural awareness may increase CRC screening among African Americans. The objective of this Capstone was to perform a systematic review of the published literature to assess the effectiveness of interventions aimed to increase participation in colorectal cancer screening among African Americans. Seven online databases were systematically searched for articles published between January 2000 and December 2007, using subject terms taken from the Medical Subject Headings (MeSH), the list of standardized descriptors used by the National Library of Medicine (NLM), to standardize the search. Studies that measured CRC screening rates and met the inclusion/exclusion criteria were selected. Data was extracted and independently reviewed by three reviewers. Study design, population characteristics, experimental intervention, control intervention and outcomes were extracted from the selected articles. Of the 392 studies identified, seven articles were selected for this review. Four articles reported the use of culturally tailored interventions and three articles did not use culturally tailored interventions. Two studies had interventions aimed at physician education. Three articles reported statistically significant results. Because of the limited number of quality studies, no conclusive recommendations can be made regarding the contribution of culturally tailored interventions towards increasing CRC screening among African Americans.

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CHILDHOOD LEAD POISONING PREVENTION: A PROGRAM PLAN FOR GALVESTON COUNTY

Publication No._____

Steven T. Lamb, MD, MPH, BS, BA
The University of Texas Medical Branch, 2007

Supervisor: Laura Rudkin

Childhood lead poisoning continues to cause permanent brain damage and other serious sequelae throughout the United States. Although the prevalence is decreasing nationwide, Galveston County lags considerably behind most sections of the country. In 2003, the United States prevalence of lead poisoning in children under 6 years old had dropped to 1.93%, while Galveston County remained at 11.5% and its largest city, Galveston, was still 17.8%. Recent loss of grant funding further challenged Galveston County Health District's efforts to address this crisis.

Nationwide evaluations of childhood lead poisoning prevention programs have identified state-of-the-art programmatic elements consistently producing positive outcomes. From this data, recommendations have been developed to guide local programs. In this capstone, these guidelines are applied to evaluate Galveston County Health District's Childhood Lead Poisoning Prevention Program. A robust plan will then be provided to optimize program effectiveness and minimize this threat to the children of Galveston County.

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VITA **74**

Acute Febrile Respiratory Illness Aboard Ships In the US Navy

by

Jonathan F. Stinson, M.D.

Capstone Project

Presented to the Faculty of the Graduate School of

The University of Texas Medical Branch

in Partial Fulfillment

of the Requirements

for the Degree of

Masters of Public Health

The University of Texas Medical Branch

June 2009

Abstract

Acute Febrile Respiratory Illness (A/FRI) is a common but significant category of illness with world wide effect and impact on morbidity and mortality. In the shipboard environment the environmental, susceptibility and exposure factors that favor the spread of A/FRI are augmented. This paper assesses the risk of A/FRI aboard US Navy ships and compares that risk to preparations and policy already in place to reduce the risk of epidemics aboard ships. For ships to have the best chance at avoiding disabling epidemics, improvements are needed in the following five areas: 1) accurate and timely medical intelligence about A/FRI outbreaks worldwide, disseminated to all ships medical departments, as well as aggressive ship board surveillance programs with rapid testing Influenza kits and real time submission up the chain of command, 2) mandated education for all shipboard personnel about proper hygiene, the avoidance of disease, and self reporting of symptoms to facilitate early diagnosis and intervention if needed, 3) facilitation of early detection of outbreaks through the widespread availability and use of point of care rapid testing for influenza A & B with reflex testing to identify Avian Flu or novel strains, 4) early treatment with antiviral medications including keeping supplies aboard for ready use to avoid time delay in procurement, and 5) development of effective respiratory isolation methods and procedures standardized by ship class, established, in place and ready for immediate use. Improvements in these five critical areas are necessary to avoid the potential of an A/FRI epidemic aboard ship and its resultant impact on morbidity, mortality and operational readiness.

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MEASUREMENT OF ACCELERATIONS EXPERIENCED BY ROUGH STOCK RIDERS

Publication No. _____

Sharmila D. Watkins, M.D., M.P.H.

The University of Texas Medical Branch, 2008

Supervising Professor R. Johnson

Introduction: Head injury is common in many sports, but it is of particular concern in professional rodeo events. Rough stock events (bareback, saddle bronc, and bull riding) provide multiple opportunities for injury. Head injuries sustained during a rough stock event may be the result of whiplash effects or impact with the animal. Although there are a few recent studies investigating the incidence of head injury in rodeo events, little is known about the acceleration profile experienced by the riders.

Methods: This study was conducted at the 2007 Houston Livestock Show and Rodeo. Two subjects were enrolled: one bull rider and one bareback rider. The subjects were fitted with custom-molded accelerometers and a waist mounted data recorder. The head accelerations experienced during the subjects' scheduled rodeo events were then measured and recorded. The motions of the riders were also captured on video.

Results: This study demonstrated the ability to record both the magnitude and direction of the head accelerations experienced. Data were obtained from both subjects and revealed significant accelerations in all axes, particularly the z-axis. The maximum resultant acceleration for the bull rider was 258 m/s^2 (26 g's), while the bareback rider experienced a greater magnitude acceleration of 450 m/s^2 (46 g's).

Conclusions: Head accelerations experienced by rough stock riders are high in magnitude and have the potential to result in injury. Further studies of accelerations experienced during actual rough stock events are needed.

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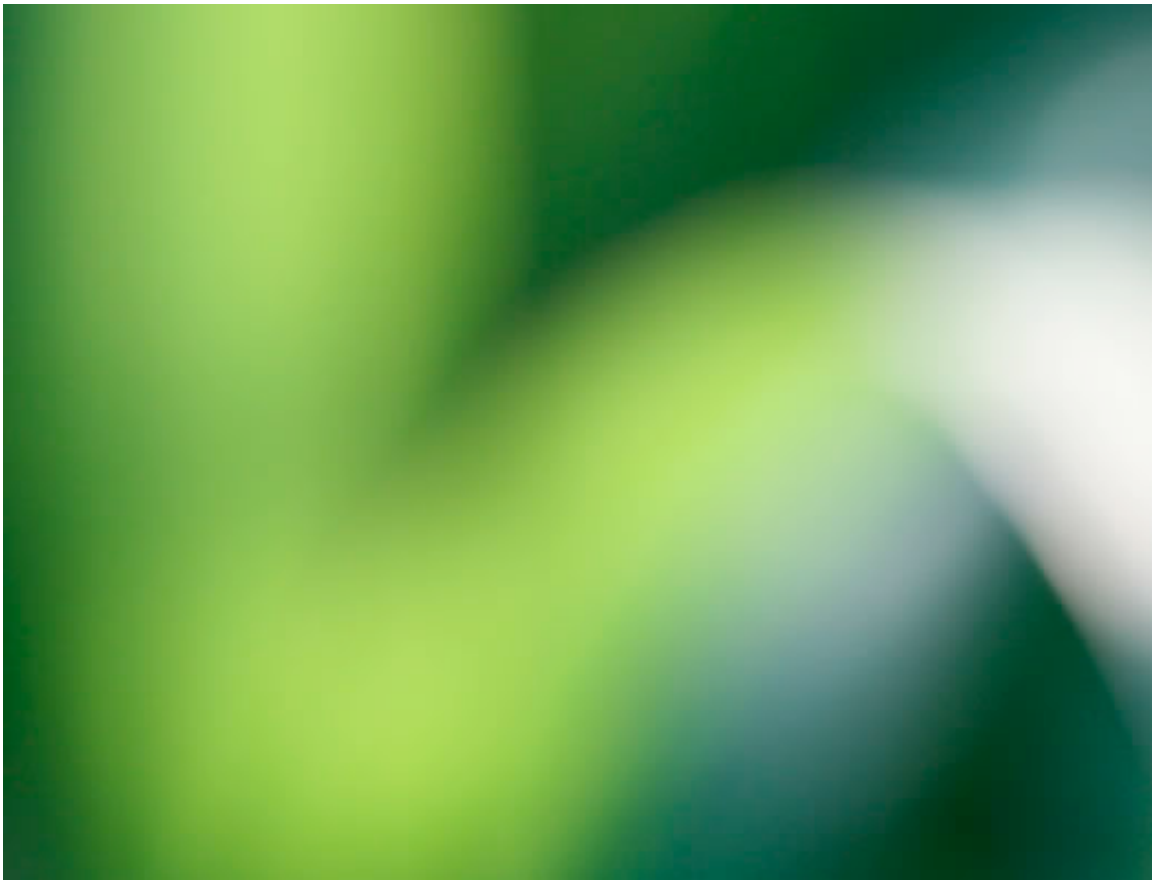
Appendix C

Plagiarism Handout

What is plagiarism? Can a writer unintentionally plagiarize? This brief guide discusses the various forms of plagiarism and aims to give writers practical advice about an abstract topic.



A Brief Guide to Avoiding Plagiarism
Get the facts

By: Talitha May

Plagiarism is the practice of intentionally or unintentionally using someone else's intellectual property without properly acknowledging the original source (Palmquist 173).

The University of Texas at Austin further explains "'plagiarism' includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one's own academic work being offered for credit"(*Catalog* sec. 11–802.d). To avoid plagiarism and its severe consequences, take the time to learn proper attribution.

Documenting your work establishes your credibility as a trustworthy writer, researcher, and professional. A properly documented text demonstrates to your readers that you have given credit where credit is due. Moreover, proper documentation indicates you have "joined the conversation" of your chosen profession and made an attempt to research your argument (Palmquist 2). Proper documentation far extends social conventions—it demonstrates the breadth and context of your research.

This guide is by *no means comprehensive;* however, it serves a springboard to learn essential rules for proper attribution, review various forms of plagiarism and gain an overview about style guides.

Understanding Plagiarism
policies and guidelines

University of Texas at Austin

The University of Texas at Austin expects students to "maintain absolute integrity and a high standard of individual honor in scholastic work" (*Catalog* sec. 11–801). For official policies regarding scholastic dishonesty, please refer to *Chapter 11: Student Discipline and Conduct* of the *Institutional Rules on Student Services and Activities* located at <http:/www.utexas.edu/student/registrar/catalogs/gi05-06/app/appc11.html#Subchapter.11-800>.

Student Judicial Services discusses the University's standards of academic integrity at <http://deanofstudents.utexas.edu/sjs/acint_student.php>.

LBJ School of Public Affairs

Once per academic year, all LBJ School of Public Affairs graduate students are required to review the University of Texas at Austin and LBJ School of Public Affairs' policies regarding academic integrity and professionalism. The graduate advisor notifies students when to satisfy the requirement. Please refer to the LBJ graduate advising website at <http://www.utexas.edu/lbj/students/view_form.php?form_id=1> for detailed instructions explaining how to meet the requirement.

The LBJ School of Public Affairs has adopted Student Judicial Service's suggested general statement regarding plagiarism:

> **Policy on Scholastic Dishonesty:** Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic honest will be strictly enforces. For further information, please visit the Student Judicial Services web site: <http://deanofstudents.utexas.edu/sjs/index.php>. (SJS, *Addressing* par. 2)

Consequences of Plagiarism

Not giving credit where credit is due will damage your reputation as a trustworthy researcher. Furthermore, you could face penalties that may severely affect your academic and professional opportunities. In public service, for example, LBJ School of Public Affairs professor Dr. Robert Auerbach warns an academic disciplinary record may prevent you "from obtaining a security clearance."

According to Andrea Lunsford, Director of the Program in Writing and Rhetoric at Stanford University, even "instructors who plagiarize, even inadvertently, have had their degrees revoked, their books withdrawn from publication" (396). Lunsford continues, "and outside academic life, eminent political, business, and scientific leaders have been stripped of candidacies, positions, and awards because of plagiarism" (396).

At the University of Texas at Austin, students may face severe sanctions. Please refer to "Consequences of Scholastic Dishonesty Can Be Severe!" at <http://deanofstudents.utexas.edu/sjs/scholdis_conseq.php> for current university sanctions.

Rules for Proper Attribution

The LBJ School of Public Affairs offers LBJ students the following basic rules to avoid plagiarism:

- Acknowledge the source of any direct or partial quotation
- Acknowledge the source of any paraphrase, summary or idea
- Acknowledge the source of **any type** intellectual property you use. Plagiarism "can occur with all types of media" (SJS, *Plagiarism* par. 2)
- Acknowledge the source of "an organization or structure" (Lunsford 396; SJS, *Plagiarism* par. 3)
- "Acknowledge a source when your own analysis or conclusion builds upon that source" (LWI, *Rules* par. 4)
- Acknowledge the assistance of anyone who may give you significant ideas (Lunsford 395)
- Acknowledge authorized collaboration—collaboration is not allowed unless your instructor specifically approves collaboration (SJS, *Unauthorized* par. 4).
- Do not "submit a substantially similar paper or project for credit in two (or more) courses unless expressly authorized to do so by your instructor(s)" (SJS, *Multiple* par. 2)
- Cite sources correctly according to your instructor's preferred style manual
- When in doubt about how to acknowledge a source, consult either your instructor or the LBJ graduate writing center. Your instructors are always glad to offer assistance

Forms of Plagiarism
more than copy and paste

Plagiarism involves more than intentionally sampling a term paper from a friend or purchasing a text from a paper mill and presenting the text as your own research. Plagiarism also involves submitting the same assignments in two or more classes; and using another author's ideas and argumentative forms, direct quotations, phrases and unique terminology without proper attribution. Moreover, plagiarism involves paraphrasing and summarizing without using proper attribution.

The following examples illustrate how to avoid plagiarism using proper documentation from both the MLA *Style Manual and Guide to Scholarly Publishing*, 3d edition and the fifteenth edition of the *Chicago Manual of Style* (notes and bibliography system).

Key (adapted from the *Chicago Manual of Style*, 15th edition)

- **P:** MLA parenthetical citation
- **B:** Bibliography entry
- **N:** Chicago documentation style note (footnote or endnote)

Note: Please consult an appropriate style manual for comprehensive documentation rules.

Multiple Submissions

If graduate students face a time crunch, what is the problem if they submit the same term paper they wrote for two different classes if the required topic is similar in both classes? The online *Catalog of the University of Texas at Austin: General Information* explains, "submission of essentially the same written assignment for two courses without the prior permission of the instructor" constitutes academic dishonesty [Section 11-802 (b)].

Student Judicial Services explains multiple submissions are problematic because they are "inherently deceptive" and give writers an "unfair academic advantage" over other students (*Multiple* par. 6; 8).

Writers who submit the same assignment multiple times also face an academic *disadvantage* by not seizing the opportunity to apply new concepts and improve their writing skills. Writing assignments and audience expectations vary significantly, so take the time to complete an assignment that meets the new requirements of your particular rhetorical context. When approved by your instructor(s), however, you may either "re-work or supplement previous work on a topic" for a new text (SJS, *Multiple* par. 3).

Never assume that you may use or supplement previous work for any of your courses or capstone projects such as the thesis or professional report (PR); instead, you must *always* obtain the approval of your instructor(s).

Although tempting, especially during time crunches, avoid multiple submissions—instead, take the time to manage your writing projects and specifically address your unique writing contexts. If you need assistance managing your writing projects, consult your instructors or the LBJ Graduate Writing Center.

For comprehensive information regarding multiple submissions, please refer to the SJS *Multiple Submissions* discussion located at <http://deanofstudents.utexas.edu/sjs/scholdis_multsub.php>.

Improper Use of Ideas and Argumentative Forms

If you use someone else's ideas, "line of thinking," or even "organization or structure" without proper attribution, then you have plagiarized (Gibaldi MLA *Style* 151; Lunsford 396). Some students, for example, inadvertently plagiarize their professor's ideas from lectures and use the borrowed information in papers for other classes.

You can avoid instances of unintentional plagiarism by acknowledging the lecture and distinguishing your professor's ideas from your own by using proper attribution. The following examples, for instance, demonstrate how to cite a lecture and an idea derived from a book.

Using the *Chicago Manual of Style*, 15th ed., a writer can easily document an idea from a professor's lecture:

According to Paul Burka, senior executive editor of *Texas Monthly*, well-written op-eds typically convey "unconventional wisdom."[2]

N: [2] Paul Burka, "LBJ School of Public Affairs Graduate Writing Center Seminar: Writing Persuasive Op-Eds." (lecture, University of Texas, Austin, TX, October 7, 2002).

B: Burka, Paul. "LBJ School of Public Affairs Graduate Writing Center Seminar: Writing Persuasive Op-Eds." Lecture, Austin, TX, October 7, 2002.

When in doubt, cite
err on side of caution

Example: Original Text

My argument broadly speaking, is that the category of the aesthetic assumes the importance it does in modern Europe because in speaking of art it speaks of these other matters too, which are at the heart of the middle class's struggle for political hegemony. The construction of the modern notion of the aesthetic artifact is thus inseparable from the construction of dominant ideological forms of modern class-society, and indeed from a whole new form of human subjectivity appropriate to that social order. In is on this account, rather that because men and women have suddenly awoken to the supreme value of painting or poetry, that aesthetics plays so obtrusive a role in the intellectual heritage of the present. But my argument is also that the aesthetic, understood in a certain sense, provides an unusually powerful challenge and alternative to these dominant ideological forms, and is in this sense an eminently contradictory phenomenon.
—Terry Eagleton, *The Ideology of the Aesthetic*, p. 9

Plagiarized Example

Aesthetics is a double-edged sword. It circulates dominant political ideologies, yet simultaneously challenges and actively criticizes them.

Explanation: The above example does not acknowledge Eagleton's assertion from the original text. Without proper attribution, the writer is simply passing Eagleton's ideas along as his or her original ideas.

Revision: Chicago
N: Terry Eagleton explains that aesthetics is a double-edged sword—it circulates dominant political ideologies, yet simultaneously challenges and actively criticizes them.[2]

[2] Terry Eagleton, *The Ideology of the Aesthetic* (Oxford: Blackwell, 1990), 9.

B: Eagleton, Terry. *The Ideology of the Aesthetic.* Oxford: Blackwell, 1990.

The revision includes a superscript number at the end of the sentence, indicating a borrowed idea. The superscript number corresponds to a note, which indicates complete publication information and the exact location of the borrowed idea. Even though the note provides complete publication information, the revision also provides a bibliographic entry. The format of a Chicago style bibliographic entry differs slightly from the note format even though both provide essentially the same publication information.

Unlike a note, however, the bibliography provides the author's last name first (last name, first name); uses periods to separate elements; does not provide parenthesis around the location, publisher, and year; has a non-indented first line, yet indented subsequent lines; and is arranged alphabetically.

Even though the *Chicago Manual of Style* prefers including a bibliography, the manual indicates, "not all annotated works require a bibliography, since full details can be given in the notes" (612). As such, be sure to ask your instructors about whether or not they require a bibliography for class assignments—professors will typically require a bibliography for texts over four pages. As a word of caution, a bibliography is always a requirement for PR and thesis writers.

Revision: MLA
P: In *The Ideology of the Aesthetic*, Eagleton asserts that contemporary aesthetics is a double-edged sword because it circulates dominant political ideologies, yet simultaneously challenges and actively criticizes them (9).

B: Eagleton, Terry. *The Ideology of the Aesthetic.* Oxford: Blackwell, 1990. Print.

In this revised example, by including the title and the author's name, the writer refers the reader to the full description of the text in the bibliography. The parenthetical citation identifies the specific page number in which the reader may locate Eagleton's claim.

For more examples of "presenting a line of thinking," see Joseph Gibaldi, MLA *Handbook for Writers of Research Papers,* 6th ed. "Paraphrasing an Argument or Presenting a Line of Thinking" pg. 72 (New York: MLA, 2003).

Improper Use
it's not worth the risk

Improper Use of Direct Quotations, Phrases, & Unique Terminology

If you use direct quotations, phrases, or unique terminology from a source without proper attribution, then you have plagiarized. You must surround the original text "you are quoting with quotation marks and identify the source and the page numbers (if any) on which the quotation can be found" and provide a bibliographic entry (Palmquist 167). Even if the text is factual, you must still use quotation marks.

When using the block quotation format, you do not need to use quotation marks; however, you must set the quotation off from the rest of the text and always include source attribution using an appropriate style. When using MLA documentation, for example, use a block quotation for text running longer than four lines (MLA 124). According to the 15th edition of the *Chicago Manual of Style* in contrast, "a hundred words or more —or at least eight lines—are set off as a block quotation" (447).

Consider the following quotation, for example, from Machiavelli's text *The Prince* in MLA format. Machiavelli argues that people see what a prince *appears* to be rather than what he *is:*

> Generally, men judge by the eye rather than the hand, for all men can see a thing, but few come close enough to touch it. All men will see what you seem to be; only a few will know what you are, and those few will not dare to oppose the many who have the majesty of the state on their side to defend them. (63–4).

For more proper documentation rules and examples, refer to either section 3.9.2 of the MLA *Style Manual and Guide to Scholarly Publishing*, 3d ed. or section 11.81 of the 15th edition of the *Chicago Manual of Style*.

To properly integrate quotations in your text, be sure to introduce the source and author using signal phrases (also known as introductory phrases) and signal verbs, which reflect the perspective the author is expressing. Examples of signal phrases include: according to Machiavelli, when Machiavelli says, in the words of Machiavelli, Machiavelli suggests, Machiavelli warns, and so forth.

For detailed information about proper quotation integration and introductory verb examples, visit the LBJ Graduate Writing Center.

Example: Original Text

Turning to some other of the aforementioned qualities, I say that every prince ought to be considered kind rather than cruel. —Machiavelli, *The Prince,* p.59

Plagiarized Example

According to Machiavelli, a prince should aim to be considered kind rather than cruel.

Explanation: Even though this example provides an introductory phrase (According to Machiavelli), it lacks attribution. Furthermore, the example lacks quotation marks surrounding the exact language (*to be considered kind rather than cruel*) borrowed from the original text.

Revision: Chicago
N: According to Machiavelli, a prince should aim "to be considered kind rather than cruel."[3]

[3] Niccolo Machiavelli, *The Prince,* trans. Daniel Donno (New York: Bantam Books, 1981), 59.

B: Machiavelli, Niccolo. *The Prince.* Trans. Daniel Donno. New York: Bantam Books, 1981.

In this revision, the author's name and superscript number refer to a footnote, which identifies the specific page number of the borrowed text. The footnote also corresponds to a bibliographic entry. In addition, the revised example has quotation marks surrounding the borrowed language from the original text.

Revision: MLA
P: Machiavelli advises a prince should aim "to be considered kind rather than cruel" (*Prince* 59).

P: In *The Prince*, Machiavelli advises a prince should aim "to be considered kind rather than cruel" (59).

B: Machiavelli, Niccolo. *The Prince.* Trans. Daniel Donno. New York: Bantam Books, 1981. Print.

The above revisions do not only introduce the source and provide an appropriate signal verb (advises), but also provide quotation marks surrounding the exact language of the original source. The parenthetical citation identifies the specific page number of the quoted material, which corresponds to complete publication information in the bibliography.

Many forms of plagiarism…
and many ways to cite

Improper Use of Indirect Sources

If you want to use a quotation from a work that quotes another source, then you must cite both sources in your text and bibliography or works cited list. Simply attributing the original quotation to the secondary source is dishonest. Moreover, do not trust that the author correctly quoted the original text.

Style manuals differ in terms of how to cite secondary sources. The *Chicago Manual of Style,* 15th ed. explains,

> To cite a source from a secondary source ('quoted in…') is generally to be discouraged, since authors are expected to have the works they cite. If an original source is unavailable, however, both the original and the secondary source must be listed.
>
> N: 1. Louis Zukofsky, "Sincerity and Objectification," *Poetry* 73 (February 1931): 269, quoted in Bonnie Costello, *Marianne Moore: Imaginary Possessions* (Cambridge, MA: Harvard University Press, 1981), 78. (727)

The third edition of the MLA *Style Manual and Guide to Scholarly Publishing* states,

> Whenever you can, take material from the original source, not a secondhand one. […]If what you quote or paraphrase is itself a quotation, put the abbreviation *qtd. in* ("quoted in") before the indirect source you cit in your parenthetical reference. (You may document the original source in a note; see 7.5.1.). (253)

For examples of proper attribution, see either section 7.4.7 of the MLA *Style Manual,* 3d edition or section 17.274 from the *Chicago Manual of Style,* 15th edition.

Improper Paraphrasing

When writers paraphrase, they rephrase detailed information from a source using their own words and sentence structure. As such, paraphrases lack quotation marks; however, you must still include the author's name and page number, and provide publication information in your bibliography. Even though paraphrases are your restatements using your own words, paraphrases still derive from original sources, so you must always properly attribute.

Writers may treat paraphrases similar to quotations by including signal phrases. If in your paraphrase, you need to keep an author's phrase or specific terminology, then surround the quoted material with quotation marks and cite accordingly.

Example: Original Text

If your transcription of a quotation introduces careless variants of any kind, you are misrepresenting your source. —Gregory M. Scott and Stephen M. Garrison, *The Political Science Student Writer's Manual,* 4th ed., p. 147.

Plagiarized Example

If you transcribe a quotation with careless variants, then you are not accurately representing your source. As such, LBJ graduate students typically photocopy their sources and double-check the accuracy of their quotations.

Explanation: The above example is plagiarized because it omits a signal phrase indicating the source of the borrowed material and lacks a citation in the text and bibliography. The example also uses exact wording and follows the same sentence structure of the original text. Furthermore, the example includes a new idea not present in the original source thus making it impossible for the reader to distinguish idea ownership.

Revision: Chicago

N: Scott and Garrison point out that you can misrepresent and original source with sloppy note taking.[2] As such, LBJ graduate students usually photocopy their sources and double-check the accuracy of their quotations.

[2] Gregory M. Scott and Stephen M. Garrison, *The Political Science Student Writer's Manual*. (New Jersey: Prentice Hall, 2002), 147.

B: Scott, Gregory M., and Stephen M. Garrison. *The Political Science Student Writer's Manual.* 4th ed. New Jersey: Prentice Hall, 2002.

Explanation: The revised sentence not only differs in sentence structure, but provides a signal phrase, unique language and a note. Moreover, the example clearly distinguishes the paraphrase from the writer's assessment of why LBJ students conscientiously photocopy on recycled paper and double-check the accuracy of their notes.

Common Knowledge
when uncertain, cite

Revision: MLA
P: According to Scott and Garrison, you can inaccurately represent an original source with sloppy note taking (147). As such, LBJ graduate students usually photocopy their sources and double-check the accuracy of their quotations.

B: Scott, Gregory M., and Stephen M. Garrison. *The Political Science Student Writer's Manual*. 4th ed. New Jersey: Prentice Hall, 2002. Print.

Explanation: The revised sentence not only differs in sentence structure, but also provides a signal phrase and identifies a specific page number. The example offers unique language and provides the complete citation in the works cited. Moreover, the paraphrase explains why LBJ students double-check the accuracy of their quotations.

Improper Summarizing

A summary is a condensation of a source's main ideas using your own words and sentence structure. Always indicate the source of your summary by referencing the author, specifying a page number, and including full bibliographic information.

Common Knowledge

Student Judicial Services explains that it may be difficult to differentiate "'borrowed ideas (which must be cited) and 'common knowledge' (which generally requires no citation)" (SJS, *Common* par. 1).

For general guidelines regarding how to differentiate the two, visit "Common Knowledge: Whose Idea Is It, Anyway?" at <http://deanofstudents.utexas.edu/sjs/scholdis_avoid_ack_cn.php> or consult your instructor(s).

When you are uncertain about whether or not the information you want to borrow is common knowledge, then simply cite your source or seek assistance from your instructor. SJS also advises, "as you encounter particular facts or ideas, pay close attention to *and note the sources*." (SJS, *Common* par. 2).

Andrea Lunsford developed the following to help writers determine whether or not they have to acknowledge sources (396). Although the list is not definitive, it allows you to see the range of possibilities:

Need to Acknowledge

- Summaries or paraphrases of a source ideas you glean from a source
- Facts that aren't widely known
- Graphs, tables, and other statistical information taken or derived from a source
- Photographs
- Illustrations or other visuals you do not create
- Experiments conducted by others
- Opinions and judgements of others
- Interviews that are not part of a survey
- Video or sound taken from sources
- Organization or structure taken from a source

Don't Need to Acknowledge

- Your own words observations, surveys and so on
- common knowledge
- Facts available in many sources
- Graphs or tables you create from statistics you compile on your own
- Drawings you create (Lunsford 396).

Ways to Avoid Plagiarism
checklists

The following (non-comprehensive) checklist highlights some ways to avoid intentional and unintentional plagiarism:

Quoting

- Use quotation marks around quotations and partial quotations
- Use quotation marks around borrowed terminology and unique phrases
- Use verbs that express your author's viewpoint
- Use signal phrases (author tags) in addition to proper documentation
- Acknowledge your sources by including notes or in-text parenthetical citations and a bibliography
- Use an appropriate block quotation format:
  MLA style: for quotations running longer than 4 lines (MLA 124)
  Chicago style: for "a hundred words or more—or at least eight lines" (447)
- Always cite your secondary sources

Paraphrasing

- Write paraphrases entirely in your own words and sentence structure
- Use signal phrases
- Use introductory verbs that characterize the author's viewpoint
- Cite the original source in the text of your document and bibliography using an appropriate style
- Use quotation marks around any words you retain from the original source
- Clearly differentiate your ideas/explanations from the original source
- Double-check the original source to make sure the paraphrase is accurate

Collaboration

- Collaborate on assignments only with instructor authorization
- Know your instructor's parameters for collaborative projects
- List the coauthors on a collaboratively written project. Gibaldi explains you may "state exactly who did what" or "acknowledge all concerned equally" (MLA *Handbook* 74)
- Acknowledge significant ideas/contributions from a conversation with instructors, classmates, and other reviewers (Lunsford 395)

Electronic Resources

- Attribute any information taken from electronic sources
- "When citing an article, always include the page range, if it is available, in the bibliography or reference list. If individual page numbers are not available, add a descriptive locator" (*Chicago* 696).
- Ask your instructor whenever in doubt about how to cite an electronic source—not finding a specific rule in a style guide does not give you the excuse to simply omit attribution
- Avoid copying and pasting passages from the Internet directly into your document without proper attribution

Documentation

- Consult a documentation guide and only use one type of documentation system consistently
- Acknowledge your sources by including notes or in-text parenthetical citations and a bibliography
- Acknowledge your sources for ideas even if you did not use their particular wording
- Ask permission to quote material from unpublished works
- Use proper attribution in all drafts that you submit to an instructor for "review, comments, and/or approval" (SJS, *Plagiarism* par. 4)

Intentional and Unintentional Plagiarism

- Avoid submitting previously written work
- Avoid turning in work from online resources that sell term papers for "research purposes" (Carbone, *Don'ts* par. 7)
- Double-check the accuracy of your notes and bibliographic information
- Use proper attribution in all drafts that you submit to an instructor for "review, comments, and/or approval" (SJS, *Plagiarism* par. 4)

Documentation
style as social convention

Documenting your work establishes your credibility as a responsible writer and researcher. Proper documentation not only demonstrates to your readers that you have attempted to research your issue, but provides readers with a sense of context. Similar to motorists using turn signals in traffic and stopping at intersections, using proper documentation likewise consists of a shared set of consistent rules for communication. Style guides will differ depending upon the shared expectations and emphases of each field. Some guides, for example, highlight the date rather than the author to emphasize the timeliness of the information.

Style Manuals

Writers adopt a specific style guide depending on the demands of their field. Most style guides will not only provide documentation rules, but also grammar and usage rules. The following list highlights a few style manuals you may most likely use among your classes:

American Psychological Association (APA): used in psychology, sociology, and other behavioral social sciences

- American Psychological Association. *Publication Manual of the American Psychological Association.* 5th ed. Washington: Amer. Psychological Assn., 2001. Print.

Chicago Manual of Style (CMS): used in many fields including the social sciences and humanities

- *The Chicago Manual of Style.* 15th ed. Chicago: U of Chicago P, 2003. Print.
- Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations.* 7th ed. Chicago: U of Chicago P, 2007. Print.

Modern Language Association (MLA): used typically in the humanities

- Gibaldi, Joseph. MLA *Handbook for Writers of Research Papers.* 6th ed. New York: MLA, 2008. Print. (aimed at undergraduate students.)
- MLA *Style Manual and Guide to Scholarly Publishing.* 3d ed. New York: MLA, 2008. Print. (aimed at graduate students and professional writers.)

For a list of "other style manuals and author's guides," Gibaldi recommends to "see John Bruce Howell, *Style Manuals of the English-Speaking World* (Phoenix: Oryx, 1983)" (MLA *Style* 310).

The Chicago Manual of Style

Professors at the LBJ School may likely require you to use the *Chicago Manual of Style,* 15th ed. and use the notes and bibliography system. The notes and bibliography system does not use in-text parenthetical citations, but places a superscript number directly after any information requiring attribution. This superscript number corresponds to either a footnote or an endnote, which provides a specific page number. Footnotes are located at the bottom of the page whereas endnotes are located at the end of your text. Notes are "'preferably' supplemented by a bibliography" (*Chicago* 594).

The following examples illustrate basic Chicago-style citations for a book:

Footnote or Endnote

[1] Terry Eagleton, *The Ideology of the Aesthetic* (Oxford: Blackwell, 1990), 200.

Subsequent reference to the same source on the same page

[2] Ibid.

Subsequent reference to the same source but on a different page

[3] Ibid., 259.
[4] Ibid., 250.

Subsequent referent to the same source, but with intervening references

[5] Brian Massumi. *A User's Guide to Capitalism and Schizophrenia.* (Cambridge: MIT Press, 1992), 93.
[6] Robert C. Solomon. *Living with Nietzsche: What the Great "Immoralist" Has to Teach Us.* (New York: Oxford UP, 2003), 145.
[7] William McDonough and Michael Braungart. *Cradle to Cradle: Remaking the Way We Make Things.* (New York: North Point P, 2002), 67.
[8] Eagleton, *Ideology,* 237.

Bibliographic reference of the same source

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The Chicago Manual of Style. 15th ed. Chicago: U of Chicago P, 2003. Print.

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Harnack, Andrew, and Eugene Kleppinger. *Online! A Reference Guide to Using Internet Sources.* Boston: Bedford/St.Martin's, 2003. Print.

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Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations.* 6th ed. Chicago: U of Chicago, 1996. Print.

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LBJ School of Public Affairs

Please send comments to:
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<http://www.utexas.edu/lbj/students/writing>

Bibliography Source Citations

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CMS, 15th ed.

May, Talitha. "A Brief Guide to Avoiding Plagiarism." 10th ed. Austin, LBJ School of Public Affairs, 09 January 2009 http://www.utexas.edu/lbj/students/writing/plagiarism.pdf (accessed month day, year).

Appendix D

Paperwork for
Advancement to Candidacy

utmb Health
Graduate School of
Biomedical Sciences

APPLICATION FOR CANDIDACY

Type information below, as well as the remaining pages where applicable.
Targeted Submission Deadline: 2 Weeks Prior to the End of Term (except Spring due to holidays)

Useful information to assist in this process can be found at: http://gsbs.utmb.edu/candidacy/.
Approval of your Application for Candidacy is required prior to registering for Thesis/Dissertation.

Full Name: _____ **Student ID#:** _____

Graduate Program Name: _____

Anticipated Date of Graduation: _____
(Month/Year)

Anticipated Degree:

- ○ **Doctor of Philosophy**
- ○ **Masters of Science**
- ○ **Masters of Public Health**
- ○ **Masters of Medical Sciences**
- ○ **Masters of Art**

Previous Degrees (list degree, college, and date received):

_____ _____
Signature of Applicant **Date**

On behalf of the Graduate School Program Faculty, I certify that the student has passed his/her qualifying examination, approve the research proposal (attached to this application), and recommend approval of the student's candidacy and proposed supervisory committee noted within this submission. The program faculty also recommends the additional course work: _____

_____ _____
Graduate Program Director **Date**

Candidacy Approved:

_____ _____
GSBS Dean **Date**

PROPOSED SUPERVISORY COMMITTEE

Criterion for members for your committee are located at http://gsbs.utmb.edu/candidacy/, section III. Once determined, type the following information of proposed members in the format noted below for **every** person.

Full Name, Degree (s), Rank, Title, Name of Graduate Program Appointment [NOT DEPT],
Complete Mailing Address with route number in zip, and
Email Address [for off campus member only]

[On Campus Example: Chris Samuels, M.D., Professor, Medical Humanities Graduate Program, 3.212 Medical Research Building, The University of Texas Medical Branch at Galveston, TX 77555-0111.]

CHAIRPERSON:

MENTOR (if different):

Member From Another Area or Program (**required**):

Member From Off Campus (**required**):

Member 5:

Member 6:

Member 7:

Member 8:

Member 9:

APPROVED:

MD/Ph.D. Program Director
(MD/Ph.D. students only)

Date

Senior Associate Dean for Student Affairs

utmb Health
Graduate School of Biomedical Sciences

SIGNATURE FORM
OF PROPOSED COMMITTEE MEMBERS

Student's Full Name: _____

Signature below indicates my agreement to serve on the above-named student's thesis/dissertation committee.

Chairperson: _____
Typed Name:

Mentor: _____
Typed Name:
(if different than chairperson)

Member 1: _____
Typed Name:

Member 2: _____
Typed Name:

Member 3: _____
Typed Name:

Member 4: _____
Typed Name:

Member 5: _____
Typed Name:

You can attach emails indicating willingness to serve in lieu of signatures.

ACKNOWLEDGEMENT FORM
BETWEEN STUDENT AND MENTOR

Signature below confirms that both of you have read and discussed the "Compact Between Biomedical Graduate Students and Their Research Advisors", found online at https://www.aamc.org/download/49868/data/gradcompact.pdf.pdf. A printed version can be provided upon request.

Student: _____ Date: _____

Mentor: _____ Date: _____

RESEARCH PROPOSAL

Research proposal must follow certain guidelines. Refer to the "Instructions Sheet for Preparation of Thesis/Dissertation Research Proposal", which is within section II at http://gsbs.utmb.edu/candidacy/.

Attach your committee approved version of your research proposal to the completed forms requested within this application to the Graduate School of Biomedical Sciences.

AAMC

Tomorrow's Doctors, Tomorrow's Cures®

Compact Between Postdoctoral Appointees and Their Mentors

December 2006

Learn

Serve

Lead

Association of
American Medical Colleges

The *Compact Between Postdoctoral Appointees and Their Mentors* is intended to initiate discussions at the local and national levels about the postdoctoral appointee-mentor relationship and the commitments necessary for a high quality postdoctoral training experience.

The Compact was drafted by the AAMC Group on Graduate, Research, Education, and Training (GREAT) and its Postdoctorate Committee. It is modeled on the AAMC *Compact Between Resident Physicians and Their Teachers*, available at www.aamc.org/residentcompact. Input on the document was received from the GREAT Group Representatives, members of the AAMC governance, and other members of the postdoctoral community, including the National Postdoctoral Association. At its October 8, 2006, annual business meeting, the GREAT Group unanimously endorsed the document. The document was subsequently endorsed by the AAMC Executive Committee on October 20, 2006.

The Compact is available on the AAMC Web site at www.aamc.org/postdoccompact

Compact Between Postdoctoral Appointees and Their Mentors

Postdoctoral training is an integral component of the preparation of scientists for career advancement as scientific professionals. Postdoctoral appointees typically join an institution to further their training in a chosen discipline after recently obtaining their terminal degree (e.g., Ph.D., M.D., D.V.M.). This training is conducted in an apprenticeship mode where she/he works under the supervision of an investigator who is qualified to fulfill the responsibilities of a mentor. The postdoctoral appointee may undertake scholarship, research, service, and teaching activities that together provide a training experience essential for career advancement.

Core Tenets of Postdoctoral Training

Institutional Commitment

Institutions that train postdoctoral appointees must be committed to maintaining the highest standards of training and to providing a program sufficient to ensure, that when completed, the trainee can function independently as a scientific professional. Institutional oversight must be provided for terms of appointment, salary, benefits, grievance procedures, and other matters relevant to the support of postdoctoral appointees. A responsible institutional official must be designated to provide this oversight, and a suitable office should be available for the administrative support of postdoctoral affairs.

Quality Postdoctoral Training

Individuals should be trained to independently formulate meaningful hypotheses, design and conduct interpretable experiments, adhere to good laboratory practices, analyze results critically, understand the broad significance of their research findings, and uphold the highest ethical standards in research. The development of additional skills—including oral and written communication, grant writing, and laboratory management—are considered integral to this training.

Importance of Mentoring in Postdoctoral Training

Effective mentoring is critical for postdoctoral training and requires that the primary mentor dedicate substantial time to ensure personal and professional development. A good mentor builds a relationship with the trainee that is characterized by mutual respect and understanding. Attributes of a good mentor include being approachable, available, and willing to share his/her knowledge; listening effectively; providing encouragement and constructive criticism; and offering expertise and guidance.

Foster Breadth and Flexibility in Career Choices

Postdoctoral appointees must have training experiences of sufficient breadth to ensure that they are prepared to pursue a wide range of professional career options. Effective and regular career guidance is essential and should be provided by the mentor and the institution.

Commitments of Postdoctoral Appointees

- **I acknowledge that I have the primary responsibility for the development of my own career.** I recognize that I must take a realistic look at career opportunities and follow a path that matches my individual skills, values, and interests.
- **I will develop a mutually defined research project with my mentor that includes well-defined goals and timelines.** Ideally, this project should be outlined and agreed upon at the time of the initial appointment.
- **I will perform my research activities conscientiously, maintain good research records, and catalog and maintain all tangible research materials that result from the research project.**
- **I will respect all ethical standards when conducting my research including compliance with all institutional and federal regulations as they relate to responsible conduct in research, privacy and human subjects research, animal care and use, laboratory safety, and use of radioisotopes.** I recognize that this commitment includes asking for guidance when presented with ethical or compliance uncertainties and reporting on breeches of ethical or compliance standards by me and/or others.
- **I will show respect for and will work collegially with my coworkers, support staff, and other individuals with whom I interact.**
- **I will endeavor to assume progressive responsibility and management of my research project(s) as it matures.** I recognize that assuming responsibility for the conduct of research projects is a critical step on the path to independence.
- **I will seek regular feedback on my performance and ask for a formal evaluation at least annually.**
- **I will have open and timely discussions with my mentor concerning the dissemination of research findings and the distribution of research materials to third parties.**
- **I recognize that I have embarked on a career requiring "lifelong learning."** To meet this obligation I must stay abreast of the latest developments in my specialized field through reading the literature, regular attendance at relevant seminar series, and attendance at scientific meetings.
- **I will actively seek opportunities outside the laboratory (e.g. professional development seminars and workshops in oral communication, scientific writing, and teaching) to develop the full set of professional skills necessary to be successful for my chosen career.**
- **At the end of my appointment, in accordance with institutional policy, I will leave behind all original notebooks, computerized files, and tangible research materials so that other individuals can carry on related research. I will also work with my mentor to submit the research results for publication in a timely manner.** I can make copies of my notebooks and computerized files, and have access to tangible research materials which I helped to generate during my postdoctoral appointment according to institutional policy.

Commitments of Mentors

- **I acknowledge that the postdoctoral period is a time of advanced training intended to develop the skills needed to promote the career of the postdoctoral appointee.**

- **I will ensure that a mutually agreed upon set of expectations and goals are in place at the outset of the postdoctoral training period, and I will work with the postdoctoral appointee to create an individual career development plan.**

- **I will strive to maintain a relationship with the postdoctoral appointee that is based on trust and mutual respect.** I acknowledge that open communication and periodic formal performance reviews, conducted at least annually, will help ensure that the expectations of both parties are met.

- **I will promote all ethical standards for conducting research including compliance with all institutional and federal regulations as they relate to responsible conduct in research, privacy and human subjects research, animal care and use, laboratory safety, and use of radioisotopes.** I will clearly define expectations for conduct of research in my lab and make myself available to discuss ethical concerns as they arise.

- **I will ensure that the postdoctoral appointee has sufficient opportunities to acquire the skills necessary to become an expert in an agreed upon area of investigation.**

- **I will provide the appointee with the required guidance and mentoring, and will seek the assistance of other faculty and departmental/institutional resources when necessary.** Although I am expected to provide guidance and education in technical areas, I recognize that I must also educate the postdoctoral appointee by example and by providing access to formal opportunities/programs in complementary areas necessary for a successful career.

- **I will provide a training environment that is suited to the individual needs of the postdoctoral appointee in order to ensure his/her personal and professional growth.** I will encourage a progressive increase in the level of responsibility and independence to facilitate the transition to a fully independent career.

- **I will encourage the interaction of the postdoctoral appointee with fellow scientists both intra- and extramurally and encourage the appointee's attendance at professional meetings to network and present research findings.**

- **I will ensure that the research performed by a postdoctoral appointee is submitted for publication in a timely manner and that she/he receives appropriate credit for the work she/he performs. I will acknowledge her/his contribution to the development of any intellectual property and will clearly define future access to tangible research materials according to institutional policy.**

- **I recognize that there are multiple career options available for a postdoctoral appointee and will provide assistance in exploring appropriate options.** I recognize that not all postdoctoral appointees will become academic faculty. To prepare a postdoctoral appointee for other career paths, I will direct her/him to the resources that explore non-academic careers, and discuss these options.

- **I will commit to being a supportive colleague to postdoctoral appointees as they transition the next stage of their career and to the extent possible, throughout their professional life.** I recognize that the role of a mentor continues after the formal training period.

This compact serves both as a pledge and a reminder to mentors and their postdoctoral appointees that their conduct in fulfilling their commitments to one another should reflect the highest professional standards and mutual respect.

Signed: _____ Date: _____
Mentor

Signed: _____ Date: _____
Postdoctoral Appointee

Individual Development Plan for Postdoctoral Fellows

Individual Development Plans (IDPs) provide a planning process that identifies both professional development needs and career objectives. Furthermore, IDPs serve as a communication tool between individuals and their mentors. While IDPs have been incorporated into performance review processes in many organizations, they have been used much less frequently in the mentoring of postdoctoral fellows. An IDP can be considered one component of a broader mentoring program that needs to be instituted by all types of research institutions.

Goals

Help individuals identify:

- Long-term career options they wish to pursue and the necessary tools to meet these; and
- Short-term needs for improving current performance.

Benefits

Postdoctoral fellows will have a process that assists in developing long-term goals. Identifying short-term goals will give them a clearer sense of expectations and help identify milestones along the way to achieving specific objectives. The IDP also provides a tool for communication between the postdoc and a faculty mentor.

Outline of IDP Process

The development, implementation and revision of the IDP requires a series of steps to be conducted by the postdoctoral fellow and their mentor. These steps are an interactive effort, and so both the postdoctoral fellow and the mentor must participate fully in the process.

BASIC STEPS

	… for Postdoctoral Fellows	*… for Mentors*
Step 1:	Conduct a self assessment	Become familiar with available opportunities
Step 2:	Survey opportunities with mentor	Discuss opportunities with postdoc
Step 3:	Write an IDP, share IDP with mentor and revise	Review IDP and help revise
Step 4:	Implement the plan Revise the IDP as needed	Establish regular review of progress and help revise the IDP as needed

Execution of the IDP Process

… for Postdoctoral Fellows

Step 1. Conduct a Self Assessment.

- Assess your skills, strengths and areas which need development. Formal assessment tools can be helpful. (Examples can be found in *Resources: Self Assessment* at the end of this document).
- Take a realistic look at your current abilities. This is a critical part of career planning. Ask your peers, mentors, family and friends what they see as your strengths and your development needs.
- Outline your long-term career objectives. (For useful information see *Resources: Career Opportunities* at the end of this document). Ask yourself:
  -What type of work would I like to be doing?
  -Where would I like to be in an organization?
  -What is important to me in a career?

Step 2. Survey Opportunities with Mentor.

- Identify career opportunities and select from those that interest you.
- Identify developmental needs by comparing current skills and strengths with those needed for your career choice.
- Prioritize your developmental areas and discuss with your mentor how these should be addressed.

Step 3. Write an IDP.

The IDP maps out the general path you want to take and helps match skills and strengths to your career choices. It is a changing document, since needs and goals will almost certainly evolve over time as a postdoctoral fellow. The aim is to build upon current strengths and skills by identifying areas for development and providing a way to address these. The specific objectives of a typical IDP are to:

- Establish effective dates for the duration of your postdoctoral appointment.
- Identify specific skills and strengths that you need to develop (based on discussions with your mentor).
- Define the approaches to obtain the specific skills and strengths (e.g., courses, technical skills, teaching, supervision) together with anticipated time frames.
- Discuss your draft IDP with your mentor.
- Revise the IDP as appropriate.

Step 4. Implement Your Plan.

The plan is just the beginning of the career development process and serves as the road map. Now it's time to take action!

- Put your plan into action.
- Revise and modify the plan as necessary. The plan is not cast in concrete; it will need to be modified as circumstances and goals change. The challenge of implementation is to remain flexible and open to change.
- Review the plan with your mentor regularly. Revise the plan on the basis of these discussions.

…for Mentors

Step 1. Become familiar with available opportunities.
By virtue of your experience you should already have knowledge of some career opportunities, but you may want to familiarize yourself with other career opportunities and trends in job opportunities (refer to sources such as National Research Council reports and *Science* career reviews; see also *Resources: Career Opportunities* at the end of this document).

Step 2. Discuss opportunities with postdoc.
This needs to be a private, scheduled meeting distinct from regular research-specific meetings. There should be adequate time set aside for an open and honest discussion.

Step 3. Review IDP and help revise.
Provide honest feedback - both positive and negative - to help postdoctoral fellows set realistic goals. Agree on a development plan that will allow postdoctoral fellows to be productive in the laboratory and adequately prepare them for their chosen career.

Step 4. Establish regular review of progress.
The mentor should meet at regular intervals with the postdoctoral fellow to assess progress, expectations and changing goals. On at least an annual basis, the mentor should conduct a performance review designed to analyze what has been accomplished and what needs to be done. A written review is most helpful in objectively documenting accomplishments. (An example is provided as an attachment – this can be modified to fit the needs of the postdoc and mentor).

Sample Annual Review

http://www.faseb.org/portals/0/pdfs/opa/SampleAnnualReview.pdf

This document was developed by the Federation of American Societies for Experimental Biology (FASEB)'s Science Policy Committee. For more information, contact:

Jennifer A. Hobin, Ph.D., FASEB Office of Public Affairs
(301-634-7650 or jhobin@faseb.org)

*Resources**

Self Assessment

Fiske, P. S. (2001). Put Your Science to Work: The Take-Charge Career Guide for Scientists. Washington, D.C.: American Geophysical Union.

Bolles, R. N. (2002). What Color is your Parachute? A Practical Manual for Job-Hunters and Career-Changers. Berkeley, Calif.: Ten Speed Press.

The Postdoc Experience

Kern, S. (2002). Fellowship Goals for PhDs and MDs: A Primer on the Molecular Biology Postdoctoral Experience. *Cancer Biology and Therapy* 1: 74-75.

National Academy of Sciences. (2000). Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral scholars, Advisers, Institutions, Funding Organizations, and Disciplinary Societies. Washington, D.C.: National Academy Press.

Career Opportunities

American Association for the Advancement of Science. Science's Next Wave. [On-line]. Available: http://sciencecareers.sciencemag.org/

The Scientist. Archives: Profession. [On-line]. Available: http://www.the-scientist.com/fragments/careers/careers_about.jsp

The Chronicle of Higher Education. Career Network Advice Columns. [On-line]. Available: http://chronicle.com/jobs/

Federation of American Societies for Experimental Biology. (1997). Graduate Education: Consensus Conference Report. Bethesda, M.D. FASEB. [On-line]. Available: http://opa.faseb.org/pages/Publications/educationreport.htm

Heiberger and Vick, eds. (1996). The Academic Job Search Handbook (2nd ed.). University of Pennsylvania Press.

Reis, R. M. (1997) Tomorrow's Professor. Preparing for Academic Careers in Science and Engineering. New York: IEEE Press. 1997.

On-line Listserv: Tomorrow's Professor. Available: http://ctl.stanford.edu/Tomprof/index.shtml

Barker, K. (2002). At the Helm: A Laboratory Navigator. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.

Resources on Non-Academic Careers

Robbins-Roth, C. ed. (1998). Alternative Careers in Science. Leaving the Ivory Tower. San Diego, Calif.: Academic Press.

Kreeger, K. Y. (1999). Guide to Nontraditional Careers in Science. London: Taylor & Francis Group.

**these resources are not considered endorsements, per se*

National Postdoctoral Association (NPA) Core Competencies Self-Assessment Checklist											
Rate your current level of development in each of the following, with 1 being "Needs attention" and 9 being "extremely competent." For more information on these competencies, please visit www.nationalpostdoc.org/competencies. Use this checklist to help craft your Individual Development Plan.											
		1	2	3	4	5	6	7	8	9	n/a
1	**Discipline-Specific Conceptual Knowledge**										
	Analytical Approach to Defining Scientific Questions										
	Design of Scientifically Testable Hypotheses										
	Broad-Based Knowledge Acquisition										
	Interpretation and Analysis of Data										
2	**Professional/Research Skill Development**										
	Literature Search Strategies and Effective Interpretation										
	Experimental Design										
	Statistical Analysis										
	Data Analysis and Interpretation										
	Laboratory Techniques and Safety										
	Principles of the Peer Review Process										
3	**Communication Skills**										
	Writing										
	Speaking										
	Teaching										
	Interpersonal										
	Special Situations										
4	**Professionalism**										
	Workplace										
	Institutional										
	Collegial										
	Universal										
5	**Leadership & Management Skills**										
	Leadership-Strategic Vision										
	Leadership-Motivating and Inspiring Others										
	Management-Project Management										
	Management-Data and Resource Management										
	Management-Research Staff Management										
6	**Responsible Conduct of Research**										
	Conflicts of Interest										
	Data Ownership and Sharing										
	Publication Practices and Responsible Authorship										
	Identifying and Mitigating Research Misconduct										
	Research with Human Subjects (when applicable)										
	Research Involving Animals (when applicable)										

Faculty Format for Curriculum Vitae

Transfer existing Curriculum Vitae into an accepted U.S. university format, with input from your mentor.
If you wish to use the UTMB faculty format, you may download it from:
http://www.gsbs.utmb.edu/postdocs/current/docs/postdoc_CV.doc

Provide the CV to departmental administrative staff for internal records and personnel file.
Provide a copy to Office of Postdoctoral Affairs:
– Campus mail Route 1050
– Fax: 25420
– Email: pooffice@utmb.edu

Revise annually, or more often as needed to insert new publications, presentations, committees, etc.

Appendix E

Practice Experience Titles

Practice Experience Sites, Preceptors and Topics

Student	*Organization/Location*	*Preceptor*	*Project Topic*
Alloway, Taylor	Galveston County Food Bank, Texas City, TX	Natalie Clark	Follow-Up Galveston County Food Bank Assessment - Nutrition Edication
Animadu, Page	Galveston Urban Ministries, Galveston, TX	Josh Dorrell	STD / Pregnancy Prevention and Resources
Dong, Julia	Galveston County Women's ADA Resource Center, Galveston, TX / Houston Health Science Center, Houston, TX	Ellen Hanley, Director Dr. Cheryl Person	Database Design for Entry & Analysis of Public Health Survey Data
Han, Wei	St. Vincent's House, Galveston, TX	Rev. Freda Marie Brown	Design Survey for Fresh Start Program and Accompanying Database
Johansen, Ben	NASA, Ben Taub Hosiptial, Houston, TX	Dr. Eric Antonsen	Public Health Benefit of Use of Ultrasound to Diagnose Pulmonary Disease in Remote Populations
Kulkarni, Kshitija	Osler Life-long Learning Institute, Galveston, TX	Michelle Sierpina	Aging in Place Fall Prevention
Mulcahy, Robert	NASA, Johnson Space Center, Houston, TX	Melchor Joaquín Antuñano, M.D., M.S.	Public Health Benefits of Anxiety Reduction
Mulgrave, Pierre	YMCA Children's Program, Galveston, TX	Rosie Torrez Brian Carrico	Training child care workders about food allergies
Robbins, Esther	Galveston County MAP and Red Cross, Galveston, TX	Rob Ruffner, Executive Dir.	Disaster Preparedness for non-profits
Ronca, Shannon	World Health Organization	Johannes Schnitzler	Disease Surveillance / Risk Reduction
Shearer, Joseph	LEAN Louisiana	Marylee Orr Dr. Sharon Croisant	Educational materials summarizing environmental assessments
Xu, Guang	Galveston County Health District	Randy Valcin	Summary report of health status data
2013-2014 Academic Year			
Anyama, Best	Fort Bend County Health and Human Services	David Olinger	Emergency Preparedness-311: List of At Risk Residents
Chesson, Brent	WHO, Dept. of Immunization Vaccines and Biologicals, Geneva Switzerland	Ana Maria Henao-Restrepo, MD, World Health Organizaion	Mennigococcal Vaccine Schedule Assessment
Chondronikola, Maria	Galveston Food Bank, Texas City, TX	Natalie Clark	Data assessment and meeting nutritional education needs
Chough, Natacha	NASA	Jennifer Law, MD, MPH	Review of space station medication protocols and poison control risk
Cochran, Ernest	Children's Partnership, Texas City	Lynday J. Perez	Mental health risk assessment tool-utilization assessment and critique

Flores, Abel	Community Boy & Girl Scouts Cuero, Texas	Sandi English, PhD	Youth Fitness Community Project
Panas, Lawrence	Galveston County Health District, Texas City	Dana Wiltz-Beckham, DVM	D'FEET Mammography Program Assessment
Parker, Aisha	Galveston County Health District	Lanny Brown	Disaster preparedness training curriculum for volunteers
Paschall, Sean	Jefferson County Public Health Department, Golden, Colorado	Mark, B. Johnson, MD, MPH	Pain control related overdose provider survey assessment and training
Pham, Khoa	UTMB Senior Center, Galveston, TX	Ruth Finkelstein Suhler	Your Doctor's Advice- Elderly Health Literacy Training
Wynne, Karon	Transitional Learning Center, Galveston, TX	Gary Seal, Ph.D.	Transitional Learning Center Infection Control Program Development for a Transitional Care Setting
2012-2013 Academic Year			
Bennett, Alina	Hospice Care Team Texas City, UTMB Galveston	Susan McCammon, MD, MFA	Providing UTMB students with necessary experience in end-of-life care.
Chung, Yvonne	Southwest Transplant Alliance	Gina Villarreal-Fullen	Analysis and comparison of public vs. private hospital organ donation rates
Clark, Seth	St. Vincent's Student Free Clinic / Galveston, TX	Michael Jackson	Create a hub that raises awareness of available social assistance for student providers and the patient population.
Connolly, Joseph	U. S. Air Force Epi Consult Service Wright-Patterson AFB, OH	LT COL Nishikawa, USAF, MC, FS USAFSAM/PHR	Outbreak investigation, disease surveillance and risk communication
Morales, Melissa	UTMB Employee Wellness, Galveston, TX	Gerald Cleveland, MA	Employee health promotion through lectures, counseling, and resources in behavior modification.
Pattarini, James	Occupational Health Clinic, Johnson Space Center, Houstoin, TX	Delos D. Carrier, MD, MSPH	Assessing and reviwing Occupational Health Screening Guidelines for JSC government employees.
2011-2012 Academic Year			
Blue, Rebecca	Wings Over Houston Air Show/Houston, TX	David J. Alexander, M.D.	Review of occupational, environmental hazards
Calderon, Veronica	UTMB Dept. of Healthcare Epidemiology	Glen Mayhall, M.D.	Understanding the clinical and epidemiological aspects of tuberculosis control and prevention in a hospital and public health setting.
Cushman, James	HOPE Clinic, Houston, TX	Richard R. Andrews, M.D., M.P.H.	Influence of ICD coding in tracking mammography results: A pilot quality improvement study supporting Hope Clinic

Darrow, David	St. Vincent's Student Free Clinic / Galveston, TX	Michael Jackson	Revitalizing and establishing a community garden at St. Vincent's House allowing them to continue supporting the disadvantaged community by linking it with the food pantry, daycare, and clinic to provide synergy for global programming.
Grant, Ashley	Instituto Nacional de Enfermedades Virales Humanas, Argentina	Delia A. Enria, M.D., M.P.H.	Understanding the mechanism of infection by South American arenaviruses
Hoverstadt, Phillip	Hospice Care Team, UTMB Galveston	Susan L. Minello, APRN, MSN, ANP-BC, CCRC	Create a sustainable hospice care training program for students across the medical professions
Karmarkar, Amol	UTMB Employee Health/Galveston, TX	Gerald Cleveland, MA	Health/ Physical Activity Promotion using UT Physical Activity Challentd and Assessing value of UTMB Alumni Field House (AFH) using Employee Health Risk Assessment Survey.
Kumar, Amit	Holland House Senior Living Center	Kirk Smith, MD, PhD	Sit-N-Fit Project For Older Adults
Kwatampora, Lily	UTMB / TDC, Galveston, TX	Gerald Cleveland, MA	Worksite Health Promortion Initiative
Mahers, Rachel	HOPE Clinic, Houston, TX	Charu Sawhney	Improvement of helath literacy at the HOPE clinic.
Patterson, Michael	Puerto Maldonado, Peru	Dr. Estela	Public health issues and influenza tracking in Puerto Maldonado
Rodriguez, Ana	Hildalgo Health & Human Services Dept., McAllen, TX	Lydia Serna, RN	Cervical Dysplasia Seminar
2010-2011 Academic Year			
Beauregard, W.	Coast Guard, Galveston, TX	Gerald N. Taylor, MD, LCDR	Review of Occupational Health & Safety
Fondy, S.	Coast Guard, Galveston, TX	Gerald N. Taylor, MD, LCDR	Review of occupational environment and stressors
Guzman, Y.	Coast Guard, Galveston, TX	Gerald N. Taylor, MD, LCDR	Examine possible occupational waste material and noise exposure that may cause potential harm to humans.
Law, J.	NASA	Sharmi Watkins, M.D., MPH Yael Barr, M.D., MPH	Adapt screening recommendations for astronauts to screening requirements.
Menon, A.	Oregon Air National Guard	Maj, Ben Mitchell, M.D.	Develop a medical scenario and participate in a readiness exercise in public health.
2009-2010 Academic Year			
Farr, N. M.	St. Vincent's Student Free Clinic / Galveston, TX	Michael Jackson	Education of clients and workforce in affordable / free medications available through social / medical resources.

Lee, J. J.	Texas AgriLife / Dickinson, TX	Marilyn Simmons	Organize and help run Do Well Be Well Diabetes Education Program.
McQuade, K.	St. Vincent's Student Free Clinic / Galveston, TX	Kathy Fiandt, DNs, FAANP	Quality improvement initiative at the student-run free clinic
Murray, D.	Coast Guard/Galveston, TX	Gerald N. Taylor, LCDR	Assess and evaluate USCG operations and assist them in risk identification and mitigation to ensure a continued healthy workforce.
Purohit, K	The Jesse Tree /Galveston, TX	Ted Hanley	Helping the organization maximize efficiency using mobile technology and mobile medical platforms
Samsey, K.	UTMB / Galveston, TX	C. Joan Richardson, M.D. Mike Megna	Medical emergency preparedness and disaster planning.
Shah, R.	Wings Over Houston Air Show/Houston, TX	Richard Jennings, MD	Review of occupational, environmental hazards
Trant, D.	Coast Guard/Galveston, TX	Gerald N. Taylor, LCDR	Review of operations
Venezia, J.	UTMB / Galveston, TX	J. Fred Thomas, PhD, LCSW	Telehealth for school based Mental Health - Improving access to mental health services for children
Watto, M.	Coast Guard/Galveston, TX	Gerald N. Taylor, LCDR	Review of occupational and safety regulations to reduce environmental and occupational safety hazards
2008-2009 Academic Year			
Lewis, L.	*Kijabe Mission Hospital / Kenya*	Phil Keiser	Health maintenance for HIV patients
Maltz, A.	*Texas AgriLife / Dickinson, TX*	Marilyn Simmons	Diabetes patient education courses
Mathers, C.	Texas Dept. of State Health Services / Austin, TX	Steve Shelton, PA	H1N1 Flu Planning and Response
Sawhny, C.	*Frontera de Salud / Brownsville, TX*	Kirk Smith, MD, PhD	Program evaluation of diabetes education courses
Shaskan, G.	*Wings Over Houston Air Show/Houston, TX*	Richard Jennings, MD	Organize and coordinate medical care operations for annual air show
Stinson, J.	*Coast Guard/Galveston, TX*	Gerald N. Taylor, LCDR	Review of occupational, environmental hazards
Strobel, J.	*Coast Guard/Galveston, TX*	Gerald N. Taylor, LCDR	Review of occupational, environmental hazards

Vaughn, E.	*Texas Dept. of State Health Services / Austin, TX*	Steve Shelton, PA	Public health response to Hurricane Ike
2007-2008 **Academic Year**			
Barr, Y.	NASA, Space Medicine/Houston, TX	Jeff Jones, MD	Research on crew restraint system for Orion spacecraft
Cole, D.	Coast Guard/Galveston, TX	Gerald N. Taylor, LCDR	Review of occupational, environmental hazards
Cole, R.	Wings Over Houston Air Show/Houston, TX	Richard Jennings, MD	Organize and coordinate medical care operations for annual air show
Davenport, L.	National Guard Bureau, Medical Services/Washington, DC	Randall M. Falk, MD, MPH	Review of National Guard response to civilian public health events
Gaydos, S.	NASA, National Buoyancy Laboratory/Houston, TX	Daniel T. Fitzpatrick, DO, MPH	Research on motion sickness prophylaxis program
Gray, J.	Galveston County Health District/LaMarque, TX	Dana Beckham, DVM	Review of school-based obesity prevention activities in Galveston County
Hyland, G.	Harris County Public Health and Environmental Services/Houston, TX	Kristy Murray, DVM, PhD	Mosquito borne disease surveillance and outbreak investigation
Jacques, M.	UTMB Employee Health/Galveston, TX	Gerald Cleveland, MA	Review of employee use of worksite wellness programs
Martinez, C.	The Jesse Tree/Galveston, TX	Ted Hanley	Database management, program evaluation of services
McKnight, T.	The Jesse Tree/Galveston, TX	David W. Mitchell	Promotion of activities for National AIDS Awareness Day
Powell-Dunford, N.	Juvenile Diabetes Research Foundation/League City, TX	Becky Williams	Health education presentations in elementary schools on diet, physical activity
Riccitello, J.	Galveston County Health District/Galveston, TX	Dana Beckham, DVM	Summary report of data on children with elevated blood lead levels
Watkins, S.	St. Vincent's/Galveston, TX	Michael Jackson	Review of patient satisfaction reports re clinic operations
2006-2007 **Academic Year**			
Grant, R.J.	Harris County Public Health and Environmental Services/Houston, TX	Kristy Murray, DVM, PhD	Mosquito borne disease surveillance and outbreak investigation

Hoefer, M.	Galveston County Health District/LaMarque, TX	Dana Beckham, DVM	Development of county-wide plan to reduce drowning accidents among children
Johnson, J.	Randolph Air Force Base/San Antonio, TX	Uzoamaka N. Odimegwu, MPH	Review of toxicology management issues, presentation at global medicine course
Lamb, S.T.	Galveston County Health District/LaMarque, TX	Dana Beckham, DVM	Generate report on teen pregnancy statistics for Galveston County
Lindgren, K.	Ellington Field Aircraft Rescue and Firefighting / Houston, TX	Kris Hopkins	Organize and coordinate medical care operations for annual air show
Lollis, B.	St. Vincent's House/Galveston, TX	Michael Jackson	Review and recommendations regarding mental health services at clinic
Rodriguez, E.	Frontera de Salud/Brownsville, TX	Kirk Smith, MD, PhD	Review of clinic operations
Taylor, N.	Galveston County Health District/LaMarque, TX	Dana Beckham, DVM	Summary report of operations at Texas City clinic for Hurricane Katrina evacuees
Walker, H.	Continental Airlines/Houston, TX	Robert Ryan, MD	Collaborative research on risk mitigation to reduce pilot error accidents
2005-2006 **Academic Year**			
Arceneaux, C.	Save Our Sisters, The Jesse Tree/ Galveston TX	David W. Mitchell	Community presentations re cancer screening among African American females
Aunon, S.	Employee Health Promotion, UTMB/ Galveston, TX	Gerald Cleveland, MA	Examine effectiveness of methods for employee Health Risk Assessment
Hall, K.D.	Save Our Sisters, The Jesse Tree/ Galveston TX	David W. Mitchell	Community presentations re cancer screening among African American females
Hollonbeck, S.	Dept. of Defense Liaison Office, CDC/ Atlanta, GA	Don Noah, DVM, MPH	Review of DOD-CDC interaction on infectious disease prevention
Kerstman, E.L.	Think First Injury Prevention Program/ Houston, TX	Blaine Wilson	School presentations re prevention of head, spinal cord injury
Phelps, S.E.	West Central Health District/ Columbus, GA	Zsolt Koppanyi, MD, MPH	Review of information technology projects (electronic medical records, disease surveillance)
Webster, T.	Project Sun Awareness for Educating Today's Youth (SAFETY)/ Houston, TX	Michael Ahearn, PhD	Data analysis of survey comparing skin cancer knowledge of family practitioners v. dermatologists
2004-2005 **Academic Year**			
Persson, J.L.	Frontera de Salud/ Brownsville, TX	Kirk L. Smith, MD, PhD	Review of housing conditions, access to clean water

Rivero, L.R.	Brownsville Community Health Center/ Brownsville, TX	Kirk L. Smith, MD, PhD	Review of Cameron County Indigent Health Care Program
Romine, D.	Smart Growth America/ Washington, DC	Don Chen, MS	Presentations to politicians re report on built environment and public's health
Taylor, J.T.	San Antonio Metropolitan Health District/ San Antonio, TX	Multiple staff	Review of diabetes education services
Toole, T.C.	Galveston County Health District/ LaMarque, TX	Multiple staff	Review of services provided by Office of Environmental Health
Trollman, C.	Miami International Airport/ Miami, FL	Anthony W. Drew	Review of CDC's Quarantine Station operations

Appendix F

MPH Degree Checklist
& GSBS Calendar

MPH CHECKLIST

Due dates are based on **Summer 2016** Graduation. If your graduation date is NOT Summer 2016, please meet with the Public Health Graduate Program Director to set up a timeline.

Public Health Program Director GPD: Dr. Christine Arcari **Education Coordinator (EC):** Shannon Carroll

	STEP	DUE DATE (Graduation Summer 2016)
CANDIDACY PROCESS		
	Capstone Committee appointed (Chair and 2 Readers) and topic approved by PH Graduate Program Director (GPD)	February 15, 2016
	Circulate capstone proposal to Committee for comments Plan on a 1 week turn around for committee members to review the capstone and provide feedback	March 1, 2016
	Capstone proposal approved by committee and GPD	March 30, 2016
	Complete APPLICATION FOR CANDIDACY and Compact 1. Go to: http://gsbs.utmb.edu/ 2. Click on "Current Students" 3. Scroll down and click on "Forms" 4. Click on "App for Candidacy" Online form – MUST BE TYPED	
	Submit Candidacy Application and approved copy of capstone proposal to the Education Coordinator (EC) The capstone proposal must be sent via email to the EC as a word document	April 1, 2016
	EC will submit Application for Candidacy to the Dean. You will be notified by the Dean's Office when you have been admitted to candidacy **You must be admitted to candidacy the semester prior to registering for thesis hours** **PROCEED TO CAPSTONE PROCESS**	April 8, 2016
CAPSTONE PROCESS		
	Register for PHS 6098 Thesis (9 credit hours) to meet graduation requirement.	Summer 2016
	Meet with your full Committee and present work plan and timeline for completion	May 4, 2016
	Circulate capstone approved by the Committee Chair to full Committee for final comments **Plan on a 2 week turn around for committee members to review the capstone**	June 27, 2016
	Submit capstone approved by the Committee to the GPD and cc EC for final review and plagiarism check	July 6, 2016
	After approval by the GPD email the capstone to the Dean's Office (Dr. Joan Nichols jnichols@utmb.edu) and cc EC If your capstone is more than 5mb, please take it to Dr. Nichols on a flash drive	July 12, 2016
	Make final edits to the capstone as required by the Dean's Office and CONFIRM WITH DR. NICHOLS the capstone is ready to upload to the Electronic Thesis Dissertation (ETD) website **PROCEED TO GRADUATION PROCESS**	

	STEP	DUE DATE (Graduation Summer 2016)
GRADUATION PROCESS		
	Upload your capstone to the ETD website 1. Go to: http://gsbs.utmb.edu/ 2. Click on "Current Students" 3. Scroll to "Ready to Graduate" 4. Click on "Electronic Thesis Dissertation"	You cannot do this until instructed by Dr. Nichols. If you do not hear from her within 2 weeks of submission, ask the EC to follow-up for you.
	Complete the GSBS graduation information packet 1. Go to: http://gsbs.utmb.edu/ 2. Click on "Current Students" 3. Scroll to "Ready to Graduate" 4. Click on "Graduation Packet" MPH Graduates disregard the following items in the packet. ITEM 2 – Only for PhD graduates ITEM 7 – The EC will complete the advisement report ITEM 8 – Final oral page is only for PhD graduates ITEMN 10 – Graduation fee is usually assessed and paid with your tuition and fees the semester you are scheduled to graduate. However, you should check your student account to make sure you do not have a balance.	July 29, 2016
	Complete Signature page and Graduate Information Form 1. Go to: http://gsbs.utmb.edu/ 2. Click on "Current Students" 3. Scroll to "Ready to Graduate" 4. Click on "Signature Page" Save the form on your computer. Delete the last 2 signature lines. Complete the form by choosing "Capstone" and deleting the other 2 document types; remove all carots (< >); and type in your information. DO NOT remove or complete the name for the DEAN's signature line.	July 29, 2016
	Submit a copy of your current CV to the GSBS Coordinator (lcteed@utmb.edu)	July 29, 2016
	Check your student account for any holds. All holds on your account must be taken care of before you can graduate	July 29, 2016
	Turn in your keys, badge, etc. to the EC	August 19, 2016

GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
ACADEMIC CALENDAR: FALL 2015 – SUMMER 2016

Subject to Change **7.17.15**

FALL TERM 2015	
July 20, 2015	Deadline for Returning Leave of Absence (LOA) students to notify GSBS office
August 1, 2015	On-Line Registration Opens for Fall
August 22, 2015	New Student Welcome Weekend, Orientation [Moody Gardens Convention Center 8am-4:30pm]
August 24-26, 2015	New Student All Schools, GSBS Orientation and Registration - UTMB Health Campus
August 28, 2015	Last Day to Register without Late Fees
August 31, 2015	First Class Day/Late Fee Assessment Begins
September 7, 2015	Labor Day Holiday – No GSBS Classes
September 8 ,2015	Last Day to Add/Drop 1st Block of 8-Week Courses
September 15, 2015	Last Day to Add/Drop Full-Term Courses
October 26, 2015	2nd Block of 8-Week Courses Begins
November 2, 2015	Last Day to Add/Drop 2nd Block of 8-Week Courses
November 11, 2015	Veteran's Day Holiday – No GSBS Classes
November 22, 2015	Thesis/Dissertation Submission to GSBS Due for December Graduation
November 26-27, 2015	Thanksgiving Holidays – No GSBS Classes
December 4, 2015	Deadline for submission of all final paperwork to GSBS for December Graduation
December 4, 2015	Deadline for submission of all final paperwork to GSBS for Advancing to Candidacy for next term
December 18, 2015	Last Day of Class, Deadline to remove "Inc" grade for previous term, Fall Degrees Awarded
December 22, 2015	Grades Due
SPRING TERM 2016	Many academic offices will be closed during the Winter Break and New Year's Day holiday (December 21-28; & January 1) so plan Spring registration and clearing of holds accordingly.
November 24, 2015	Deadline for returning Leave of Absence (LOA) students to notify GSBS office
December 1, 2016	Online Registration Opens for Spring
January 5, 2016	Last Day to Register without Late Fees
January 6, 2016	First Class Day/Late Fee assessment Begins
January 13, 2016	Last Day to Add/Drop 1st Block 8-Week Courses
January 18, 2016	Martin Luther King Holiday – No GSBS Classes
January 22, 2016	Last Day to Add/Drop Full-Term Courses
February 15, 2016	President's Day Holiday – No GSBS Classes
February 29, 2016	2nd Block of 8-Week Courses Begins
March 7, 2016	Last Day to Add/Drop 2nd Block of 8-Week Courses
March 25, 2016	Thesis/Dissertation Submission to GSBS Due for May Graduation
April 8, 2016	Deadline for submission of all final paperwork to GSBS for May Graduation
April 8, 2016	Deadline for submission of all final paperwork to GSBS for Advancing to Candidacy for next term
April 22, 2016	Last Day of Class, Deadline to remove "Inc" grade for previous term, Spring Degrees Awarded
April 29, 2016	Grades Due
May 20, 2016	Commencement (4:00pm; Levin Hall – Main Auditorium)
SUMMER TERM 2016	
March 21, 2016	Deadline for returning Leave of Absence (LOA) students to notify GSBS office
April 1, 2016	Online Registration Opens for Summer
April 29, 2016	Last Day to Register Without Last Fees
May 2, 2016	First Class Day/Late Fee Assessment Begins
May 6, 2016	Last Day to Add/Drop 1st Block of 8-Week Courses
May 17, 2016	Last Day to Add/Drop Full-Term Courses
May 26, 2016	Memorial Day Holiday – No GSBS Classes
June 27, 2016	2nd Block of 7-Week Courses Begins
July 1, 2016	Last Day to Add/Drop 2nd Block of 7-Week Courses
July 4, 2016	Independence Day Holiday – No GSBS Classes
July 12, 2016	Thesis/Dissertation Submission to GSBS Due for August Graduation
July 29, 2016	Deadline for submission of all final paperwork to GSBS for August Graduation
July 29, 2016	Deadline for submission of all final paperwork to GSBS for Advancing to Candidacy for next term
August 12, 2016	Last Day of Class, Deadline to remove "Inc" grade from previous term, Summer Degrees Awarded
August 19, 2016	Grades Due