

Health Professions Training, Education, and Competency: Women's Health in the Pharmacy School Curriculum



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PREFACE

In 1992, in the Congressional appropriations report for Fiscal Year (FY) 1993, the Senate and House requested that the National Institutes of Health (NIH), Office of Research on Women's Health (ORWH), the Department of Health and Human Services (HHS) (formerly the Public Health Service) Office on Women's Health (OWH), and the Health Resources and Services Administration (HRSA), Office of Women's Health work together to describe the extent to which women's health content is included in the medical curriculum. In 1993, in the FY 1994 appropriations report, Congress broadened its concern to curricula of all health professionals. The Director of the ORWH; the HRSA Senior Advisor, Women's Health; and program staff of the HRSA Bureau of Health Professions responded to these requests for assessments of curricula in health professions education, beginning first with medicine, to set a format and model instrument that could be used for other health professions. The result was the first of these reports, *Women's Health in the Medical Curriculum, Report of a Survey and Recommendations*, published in 1996. This report was followed by the reports *Women's Health in the Dental School Curriculum, Report of a Survey and Recommendations*, in 1999, and *Women's Health in the Baccalaureate Nursing School Curriculum: Report of a Survey and Recommendations*, in 2001. Recognizing that pharmacists represent the third largest group of health professionals in the United States, the assessment was extended to pharmacy education. This report represents the culmination of the efforts of the American Association of Colleges of Pharmacy (AACP) and collaborating organizations [American Pharmacists Association (APhA), American College of Clinical Pharmacy (ACCP), the University of Illinois at Chicago (UIC) and the UIC/U.S. Department of Health and Human Services (HHS) Center of Excellence in Women's Health, and the University of Arizona Center for Education and Research on Therapeutics (Arizona CERT)]. The work was supported by the Health Resources and Services Administration, the National Institutes of Health (NIH) Office of Research on Women's Health, the Agency for Healthcare Research and Quality (AHRQ), the Food and Drug Administration (FDA), and the U.S. Department of Health and Human Services (HHS) Office on Women's Health.

Federal efforts to address specific women's health issues, especially research on women's health and women's health care concerns, have continued to expand during the mid 1980s. Scientists, clinicians, and the public have become increasingly aware of the inequities in women's health and the need to include adequate numbers of women as participants in clinical trials. More formal programs and policies have been developed since 1990. These efforts include the education of health professionals about the expanded concepts of women's health across the lifespan, including sex and gender comparisons. New attention is being given to securing funding for specific women's health concerns, overcoming the barriers to accessing health care services, and preparing and promoting women in senior health and scientific positions in the Nation's public and private academic and health care institutions and organizations.

Through collaboration among HRSA, NIH, the OWH, AACP, and other organizations, significant progress is being made toward expanding and enhancing the education of future health care professionals, including pharmacists, on the growing body of women's health-related knowledge. This project has contributed valuable materials to support that education. To improve the health care of women, it is important that pharmacy students learn about women's health issues, including sex and gender factors affecting health, wellness, and disease

manifestation and treatment across the female lifespan; the critical social and environmental factors impacting women's health; emerging knowledge resulting from research on women's health; and the importance of pharmacist-patient interactions to health and well-being of female patients. The developed materials will help pharmacy faculty address these issues in a threaded way throughout the pharmacy curriculum; in didactic and experiential courses, and across required and focused elective courses.

This report provides information that can increase the awareness of policy makers and health professions educators about the full range of content and desired student outcomes needed for understanding of women's health issues and optimal health care for female patients. The articulation of these content areas and student outcomes is an important first step in expanding and enhancing women's health instruction of future pharmacists. Additionally, the compiled resources will advance the educational process further by providing access to quality materials to facilitate the integration of women's health content across the curriculum. We trust this information and these materials will serve as a resource for institutions to consider, adapt, and integrate into their evolving curricula so they are able to optimize the ability of graduates to provide quality health care to women across their life span.

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EXECUTIVE SUMMARY

There has been a growing recognition of similarities and differences by sex and gender in disease rates, symptoms, and the outcomes of therapeutic interventions. In this context, the term *sex* refers to “the classification of living things, generally as male or female, according to their reproductive organs and functions assigned by their biological make-up. Gender refers to a person’s self-representation as male or female, or how society responds to that person based on the individual’s gender presentation.”¹ There has also been increased recognition that the field of women’s health extends beyond reproductive years and that sex and gender issues are relevant across the lifespan and across many diseases and conditions. While research continues to document these differences and uncover the bases for such differences, health professions education programs have been slow to incorporate these new understandings into the curriculum.

In May 2004, the American Association of Colleges of Pharmacy (AACP) reviewed and revised its Center for the Advancement of Pharmaceutical Education (CAPE) *Educational Outcomes*.² The 2004 CAPE *Educational Outcomes* describe the desired terminal outcomes of a pharmacy curriculum. *Educational Outcomes 2004* is an organizing framework to facilitate the integration of general abilities; legal, ethical, social, economic, and professional issues; emerging technologies; and evolving pharmaceutical, biomedical, sociobehavioral, and clinical sciences across the major practice functions of patient-centered and population-based pharmaceutical care; systems management; and health promotion, disease prevention, and public health. The framework provides structure and guidance for curriculum development by including emerging components of contemporary pharmacy practice and setting expectations for interprofessional collaboration, scientific grounding, evidence-based practice, appropriate use of technology, and integration of fundamental general abilities in thinking, communication, ethics, social and contextual awareness, social responsibility, social interaction, professionalism, and life-long learning into professional contexts.

Women’s health issues provide an important and relevant context and imperative for the development of pharmacists’ abilities across the CAPE *Educational Outcomes*. The expanding research agenda and understanding of women’s health issues, such as differences between males and females in disease manifestation, drug response, and the clinical, social and other factors impacting health across female lifespan stages, when incorporated into the education and training of pharmacists, strengthens the scientific and clinical knowledge base that underpins their clinical decision making. In contemporary health care settings, especially in the community, pharmacists are increasingly engaged in health promotion, disease prevention, and public health initiatives. To prepare future pharmacy practitioners capable of meeting the needs of society and female patients, the pharmacy curriculum must reflect a lifespan approach to women’s health, integrated across the entirety of the curriculum.

This project was built on the analyses and recommendations relative to the inclusion of women’s health-related content and outcomes in the medical, dental, and nursing education programs.^{3,4,5} It involved the analysis of the current status of women’s health issues within the professional degree program in pharmacy, including content and instructional delivery format, and was intended to serve the Health Resources and Services Administration, along with the National Institutes of Health (NIH) Office of Research on Women’s Health, the Agency for Healthcare

Research and Quality (AHRQ), the Food and Drug Administration (FDA), and the U.S. Department of Health and Human Services (HHS) Office on Women's Health in their efforts to document women's health content in educational programs across the health professions. Using the results of a Web-based review of current curricular offerings at U.S. colleges and schools of pharmacy and input from content experts, a framework for a curriculum in women's health was outlined to guide the incorporation of instruction into and throughout the pharmacy degree program.

Project Approach and Methods

At initiation of the project, an explicit decision was made to not duplicate the methods used in the previous studies of women's health instruction in health professions education programs. It was agreed that a detailed survey of U.S. colleges and schools of pharmacy regarding the extent to which women's health related content was included within the pharmacy curriculum would not yield information not already generally known. It was decided to conduct a more simple analysis of course and curriculum descriptions available on the Web sites of the colleges and schools of pharmacy, learn from the recommendations included in the medicine, dentistry, and nursing reports, and focus the project efforts and resources on the development of materials that would facilitate the expansion and enhancement of women's health instruction within pharmacy education.

Beginning in 1999 and prior to the beginning of the funding period for the project, representatives of the American Association of Colleges of Pharmacy (AACCP), the American Pharmacists Association (APhA), the American College of Clinical Pharmacy (ACCP), the University of Illinois at Chicago (UIC) and the UIC/U.S. Department of Health and Human Services (HHS) Center of Excellence in Women's Health, and the University of Arizona Center for Education and Research on Therapeutics (Arizona CERT) participated in planning discussions and completed preliminary steps toward achieving the project outcomes. The project participants, with primary input from faculty members in the University of Illinois College of Pharmacy and those associated with the UIC/HHS Center for Excellence in Women's Health, prepared a draft outline of content areas that may serve as a core curriculum in women's health in pharmacy education. Feedback for the project was obtained from participants at the AACCP Women Faculty Special Interest Group (SIG) luncheon and meeting in July 2001. Participants were asked to review the draft curriculum outline and provide information on the current status of women's health instruction at their own institutions. An online review of the draft curriculum framework was activated in August 2002.

Findings

The principal finding of the analysis of Web-based information and curricular descriptions was that women's health instruction was specifically mentioned (in fall 2004) by just under 40 percent (n=34) of the 89 U.S. colleges and schools of pharmacy. At those institutions, some of which have multiple courses with women's health content, 48 courses were identified: 21 didactic elective courses dedicated to women's health issues, two elective experiential courses dedicated to women's health; 3 didactic electives in which women's health was one of a broad array of component content areas; and 22 required courses in which women's health content was incorporated. Among those 22 required courses, 18 were courses in pharmacotherapeutics;

two were pharmacokinetics/dose optimization courses; one was a pharmacy practice course, and one was a first-year orientation course on practice trends. Given the variability across colleges and schools in how course descriptions are worded and the level of detail provided, it is likely that women's health issues are included, at the very least, in the pharmacotherapeutics courses in more colleges and schools than identified in this review.

Input from interested faculty members, the project Steering Committee, and Content Expert Panel led to the following guiding principles for the development of the project resources:

- The curriculum framework should be comprehensive, organized across and by lifespan stages, and be outcome-based.
- Resource materials and other guidance documents should be as flexible in design as possible to allow use by multiple institutions and to facilitate integration of the content into existing courses to the greatest extent possible, rather than suggesting the addition of new focused required or elective courses.
- Materials should be Web-accessible.

Resources

To facilitate the expansion and enhancement of women's health instruction within pharmacy education, the following resources were developed as components of this project:

- **Overall design/concept for a Web-based Curricular Resource Center (CRC).** Many pharmacy educators, as well as others (e.g., practitioners, consultants, corporations) who provide professional education/development materials, currently use the Internet, university, and/or personal Web sites for hosting and delivering courses and the related resources to enhance their teaching. The AACP CRC provides a single point of access for curricular materials available on a variety of topics and from various sources.
- **Curriculum Framework.** A framework for a curriculum in women's health was outlined to guide the integration of women's health issues into the pharmacy curriculum. The framework includes an overview section on sex and gender factors, and outlines content areas and desired student outcomes organized by lifespan stages, including infancy through reproductive years; reproductive age (including pregnancy and lactation); and climacteric, menopause, and post-menopausal women. The curriculum guide is included as Appendix VI.
- **List of Instructional Resources Available from Federal Co-sponsors** of the Women's Health Project. For each Federal office, information is organized as follows:
 - Name of Agency;
 - Office of Women's Health (Yes/No);
 - One to two sentence description of vision, mission, and or focus of the agency/office;
 - Web site URL for office of women's health (if applicable);
 - Key programs and initiatives related to women's health (includes URLs if information is available on the Web);
 - Grant programs available through the agency/office related to women's health research and/or instruction (includes URLs if information is available on the Web);

- Fact sheets or other information summaries related to women's health (includes URLs if information is available on the Web);
- List of publications (examples of recent publications available to the public); and
- Additional information (telephone number or URL to access additional publications, information).

INTRODUCTION

In recent years, there has been a growing recognition of similarities and differences by sex and gender in disease rates, symptoms, and the outcomes of therapeutic interventions. In this context, the term *sex* refers to “the classification of living things, generally as male or female, according to their reproductive organs and functions assigned by their biological make-up. Gender refers to a person’s self-representation as male or female or how society responds to that person based on the individual’s gender presentation.”¹ There has also been increased recognition that the field of women’s health extends beyond reproductive years and that sex and gender issues are relevant across the lifespan and across many diseases and conditions. While research continues to document these differences and uncover the bases for such differences, health professions education programs have been slow to incorporate these new understandings into the curriculum.

Three projects were completed in the late 1990s and early 2000s to document the extent to which women’s health issues are addressed in the education and training of physicians, dentists, and nurses. The first of these reports, *Women’s Health in the Medical School Curriculum: Report of a Survey and Recommendations*, was issued in 1996. The report documented the then current state of women’s health instruction in the medical curriculum (allopathic and osteopathic), recommended core components that a women’s health curriculum in medicine should comprise, presented several strategies for implementing a women’s health curriculum in medical education, and recommended a model women’s health curriculum with 11 core content areas.³

The report specific to the education and training of dentists, *Women’s Health in the Dental School Curriculum: Report of a Survey and Recommendations*, was issued in 1999. The report reviewed the results of a survey conducted to determine the status of women’s health and oral health issues in the dental school curriculum, as well as the format (required or elective; instructional strategies; and assessment methods) of such instruction. Additionally, the report included 12 recommendations for the integration of women’s health issues into the dental curriculum.⁴

Issued in 2001, *Women’s Health in the Baccalaureate Nursing School Curriculum: Report of a Survey and Recommendations*, duplicated the processes used in medicine and dentistry and applied them to the baccalaureate nursing curriculum. The report noted that “despite a heavy emphasis on women’s health issues in the baccalaureate nursing curriculum, there are areas for improvement.” Fifteen recommendations were forwarded toward advancing women’s health in nursing education.⁵

Pharmacists represent the third largest group of health professionals in the United States, with approximately 223,000 active pharmacists in 2004.⁶ Any effort to increase the use of preventive services and improve women’s health status must be interprofessional in nature and include pharmacy as one of the targeted health professions. The time is appropriate to examine the extent to which women’s health issues are included in the pharmacy curriculum, facilitate the expansion and enhancement of women’s health instruction in pharmacy education with a curriculum framework that organizes recommended required and elective content into modules, and facilitate the expansion and enhancement of women’s health instruction in health professions education.

This project involved the analysis of the current status of women's health issues within the professional degree program in pharmacy, including content and instructional delivery format, and was intended to serve the Health Resources and Services Administration (HRSA), along with the National Institutes of Health (NIH) Office of Research on Women's Health, the Agency for Healthcare Research and Quality (AHRQ), the Food and Drug Administration (FDA), and the U.S. Department of Health and Human Services (HHS) Office on Women's Health in their efforts to document women's health content in educational programs across the health professions. Using the results of the analysis, a framework for a curriculum in women's health was outlined to guide the integration of women's health issues into the pharmacy curriculum.

Beginning in 1999, representatives of the American Association of Colleges of Pharmacy (AACCP), the American Pharmacists Association (APhA), the American College of Clinical Pharmacy (ACCP), and the University of Illinois at Chicago and the UIC/U.S. Department of Health and Human Services (HHS) Center of Excellence in Women's Health, and the University of Arizona Center for Education and Research on Therapeutics (Arizona CERT) participated in planning discussions and completed preliminary steps toward achieving the project outcomes. Detailed information about each of the participating organizations is included in Appendix I.

Representatives from the participating organizations (AACCP, APhA, ACCP, University of Illinois at Chicago, Arizona CERT) and key staff from the American Association of Medical Colleges (AAMC), the American Dental Education Association (ADEA), and the American Association of Colleges of Nursing (AACN) involved in the conduct of the similar projects in those professions were invited to serve on the project Steering Committee formed to provide input into the conduct of the project and consider broader project implications for and implementation with other health care professions. Members of the project Steering Committee and their organizational affiliations are listed in Appendix II.

A Content Expert Panel consisting of content experts from pharmacy education (identified through AACCP and the ACCP Women's Health Practice Research Network) and staff from the various Federal co-sponsors of the project with content expertise was convened to guide the analysis of the information gathered regarding the current status of instruction in women's health in the pharmacy curriculum and to revise the draft curriculum framework. Members of the Content Expert Panel and their organizational affiliations are listed in Appendix III. Over the course of the project, the Content Expert Panel was tasked to:

- Review the draft curriculum framework; suggest needed modifications to the content and/or organization of the framework; and comment on the extent to which the abilities and content in the framework are included within the curriculum at their institutions.
- Review the list of information sources and resources; indicate which, if any, they have used to provide instruction for professional degree students; and identify additional sources and instructional materials not listed that they use or that are used at their institutions to provide instruction in women's health for professional degree students.

CURRICULAR RESOURCE CENTER

Knowledge and information related to pharmacy practice, patient care, and the biomedical sciences is expanding rapidly. Not only are new areas of science and practice emerging, but the depth of specialization required to effectively teach and conduct research across the breadth of subjects touching the contemporary practice of pharmacy challenges the resources of the typical college or school of pharmacy. AACP has developed a Curricular Resource Center (CRC) as a solution to expand educators' access to evidence-based materials on timely and relevant topics. Such materials are appropriate for incorporation into required and elective coursework in professional doctoral degree programs, as well as in postgraduate programs for pharmacists and other health professionals.

The accessibility and versatility of Web-based information lends itself to this resource center. Many pharmacy educators, as well as others (e.g., practitioners, consultants, corporations) who provide professional education and development materials, currently use the Internet, university, and personal Web sites for hosting and delivering courses and related resources to enhance their teaching. The AACP CRC provides a single point of access for curricular materials available on a variety of topics and from various sources. Each electronic folder is devoted to a particular topic (e.g., women's health, pharmacogenomics, patient safety, managed care, geriatrics, social and administrative sciences). The materials associated with any given topic vary in design and delivery medium and may include sets of lecture outlines and notes, video and audio clips, case studies, laboratory exercises, simulations, and assessment strategies and instruments.

Technology Consultant Mark Hollander of MH+CO was engaged to provide input into platform decision making and to outline a framework for the development of instructional resources. Through a series of telephone conferences and on-site meetings with the project staff, the technology consultant identified various technology and organization solutions to produce and deliver the curriculum framework and instructional resources. After comparing 11 possible platforms and vendors, Mr. Hollander recommended a delivery and distribution platform for the developed instructional resources, because of the relatively low initial costs, a simple fee structure, the strength of the company; the number of universities already using a platform, and the ease of use for course developers. AACP staff user accounts were established for further study and testing.

Project staff registered with this vendor to establish a prototype module. Resources were drawn from existing sites and courses at colleges and schools of pharmacy to develop an example of how such materials might be integrated into a Web-based system organized within the platform format.

The analysis of available delivery technologies and formats was valuable in informing the subsequent development of the instructional resources in women's health as part of this project. However, the estimated costs of maintaining a client-vendor relationship could be prohibitive. AACP had recently completed a Web site upgrade and redesign and the decision was made to build the Curricular Resource Center within the infrastructure and capabilities of the AACP Web site.

Christopher Cullander, Assistant Dean, School of Pharmacy, University of California-San Francisco, was engaged to provide AACP staff with the perspectives of a faculty member and potential user of Web-based instructional resources and to assist AACP staff in:

- Defining the larger infrastructure of a curricular resources center under which the Women's Health curricular resources would fall; and
- Describing conceptually how access to newly developed resources, existing faculty-developed resources, and resources available from other organizations (Federal agencies, professional organizations, commercial vendors) may be integrated and provided.

Dr. Cullander confirmed that there was an increasing use of digital media (e.g., video clips, animations, audio files, images, diagrams, graphics, as well as text resources such as case studies, laboratory exercises, and classroom demonstrations) by faculty in the design and delivery of instruction; use of online course management systems; and publication and deposition of instructional materials online. He identified the following problems with the current status of Web-based instructional materials:

- Quality is inconsistent across resources;
- Resources are available in varying formats and delivery vehicles;
- Electronic links to resources change over time; and
- There is much duplication of effort in resource development and duplicative resources available in some content areas (e.g., histology resources).

Potential advantages in the curricular resource center approach for shared resources were identified as:

- Reduction in overall instructional costs;
- Savings in faculty time spent in designing instruction; and
- Improvement in quality of instructional materials and education provided.

Goals for the Curricular Resource Center were suggested:

- Provide access to instructional resources online;
- Promote sharing of resources; including mechanisms to encourage faculty to create and use such resources;
- Maintain standards for interoperability and efficient access to resources; and
- Build a scaleable, sustainable infrastructure.

The Curricular Resource Center is accessible at:

<http://www.aacp.org/site/page.asp?TrackID=&VID=1&CID=1037&DID=6098> (accessed May 15, 2005).

WEB-BASED REVIEW OF EXISTING CURRICULA

An initial review of Web-based information from colleges and schools of pharmacy relative to instruction and/or research in women's health was completed in November/December 2002. Descriptions of elective courses focused exclusively on women's health were obtained from 21 colleges and schools of pharmacy. Specific mention of women's health issues within descriptions of required courses were found for six programs, most frequently within the pathophysiology and/or pharmacotherapeutics sequence. One college of pharmacy (University of Kentucky) was involved in an extensive women's health curriculum development project across several health professions funded by the U.S. Department of Education Fund for the Improvement of Postsecondary Education. Descriptions of two continuing education conferences for health care professionals in which a college or school of pharmacy functioned as a convener or co-convener were identified. Several colleges and schools of pharmacy have faculty members that list women's health as an area of research activity and interest. In 2002, of the 13 National Centers of Excellence in Women's Health (a program in the U.S. Department of Health and Human Services, Office on Women's Health), six were on campuses that have colleges or schools of pharmacy.

In August 2004, a second Web-based review of each college and school of pharmacy's curriculum was conducted in order to determine any change in the extent of coverage of gender-related health topics. The 89 colleges and schools of pharmacy recognized by the Accreditation Council for Pharmacy Education (ACPE) in August 2004 are listed in Appendix IV. The method used involved browsing the college or school home page first, followed by a search for course catalog descriptions or course schedules, and scan for stand-alone courses on women's health and specific mentions of women's health issues/topics within broader courses. The principal finding of the analysis of Web-based information and curricular descriptions was that women's health instruction was specifically mentioned by just under 40 percent (n=34) of the 89 U.S. colleges and schools of pharmacy. At those institutions, some of which have multiple courses with women's health content, 48 courses were identified: 21 didactic elective courses dedicated to women's health issues, two elective experiential courses dedicated to women's health; 3 didactic electives in which women's health was one of a broad array of component content areas; and 22 required courses in which women's health content was incorporated. Among those 22 required courses, 18 were courses in pharmacotherapeutics; two were pharmacokinetics/dose optimization courses; one was a pharmacy practice course; and one was a first-year orientation course on practice trends. Appendix V lists the courses and content identified in the Web-based review of curricula. Given the variability across colleges and schools in how course descriptions are worded and the level of detail provided, it is likely that women's health issues are included, at the very least, in the pharmacotherapeutics courses in more colleges and schools than identified in this review.

DEVELOPMENT OF A CURRICULUM FRAMEWORK FOR WOMEN'S HEALTH INSTRUCTION

The project participants, with primary input from faculty members in the University of Illinois College of Pharmacy and those associated with the UIC/HHS Center for Excellence in Women's Health, prepared a draft outline of content areas that might serve as a core curriculum in

women's health in pharmacy education. Feedback for the project was obtained from participants at the AACP Women Faculty Special Interest Group (SIG) luncheon and meeting in July 2001. Participants were asked to review the draft curriculum outline and provide information on the current status of women's health instruction at their own institutions. An online review of the draft curriculum framework was activated in August 2002.

Two responses were received as a result of an online review of the draft curriculum framework in August 2002. Feedback on the curriculum framework from representatives of the Federal sponsors of the project was obtained through personal interviews conducted by Michiyo Yamazaki, FDA Office of Women's Health Intern. A reformatted curriculum framework that included the Federal partner suggestions was prepared for review by the project Steering Committee and Content Expert Panel for finalization.

During the second quarter of the project, project staff continued to welcome and seek individual and group (Steering Committee and Content Expert Panel) review and input into the evolving curriculum framework. Dr. Shareen El-Ibiary, Clinical Assistant Professor, School of Pharmacy, University of California, San Francisco, expressed interest in the project and agreed to review the draft curriculum framework and provide feedback on its content and structure.

A framework for a curriculum in women's health was outlined to guide the integration of women's health issues into the pharmacy curriculum. The framework includes a section on sex and gender factors, and outlines content areas and desired student outcome abilities organized by lifespan stages. The complete curriculum framework is included as Appendix VI.

COMPILED LISTS OF INSTRUCTIONAL RESOURCES

Project staff conducted an initial review the Web sites of project sponsors (HRSA, NIH, FDA, AHRQ) and professional organizations and societies (American Pharmacists Association, American College of Clinical Pharmacy, Society for Women's Health Research, etc.) to identify and list existing resources to support instruction in women's health. In early October 2003, project staff met with Federal co-sponsors to discuss revision of the draft list of existing resources. The goals of the meeting were to develop a resource list that better serves pharmacy faculty and informs them of women's health-related publications available from the Federal agencies. From the meeting, an organizing format for resource descriptions was developed and included the following components:

- Name of Agency;
- Office of Women's Health (Yes/No);
- One to two sentence description of vision, mission, and or focus of the agency/office;
- Web site URL for office of women's health (if applicable);
- Key programs and initiatives related to women's health (includes URLs if information is available on the Web);
- Grant programs available through the agency/office related to women's health research and/or instruction (includes URLs if information is available on the Web);
- Fact sheets or other information summaries related to women's health (includes URLs if information is available on the Web);
- List of publications (examples of recent publications available to the public); and

- Additional information (telephone number or URL to access additional publications and information).

Following development of an organized format for the resource descriptions, staff at the various Federal offices and agencies finalized their materials accordingly. The list of women's health-related publications, initiatives, contact information, and grant and funding opportunities available from the Federal women's health offices was compiled. The Compiled List of Instructional Materials Available from Federal Co-Sponsors, updated in August 2005, is available online in the AACP Curricular Resource Center at:

http://www.aacp.org/Docs/AACPFunctions/Governance/5853_CompiledresourcelistforWeb.pdf (accessed August 15, 2005) and is included as Appendix VII.

DISSEMINATION EFFORTS

On June 18, 2004, a conference call was held among AACP staff (Susan Meyer, Erin McSherry, Norida Torriente) and Federal partners for the project to introduce a new director of communications at AACP, Norida Torriente, who would be participating in the project as it related to AACP's larger communications strategies and goals, to provide a project update, and to begin a discussion on planning the public release of materials at the project's completion. The call was also intended to gather guidelines for the release of a federally-funded project, in terms of any specific language and procedure required. As a result of the discussion, it was decided to focus dissemination efforts on the intended users of the developed curriculum framework and compiled resources, primarily faculty at colleges and schools of pharmacy. A variety of strategies and formats have been used to disseminate the work of the project, including:

- Lucinda L. Maine, Ph.D., AACP Executive Vice President, presented an update on the *Health Professions Training, Education, and Competency: Women's Health in the Pharmacy School Curriculum* project at the FIP (International Pharmaceutical Federation) Academic symposium on "Incorporating Gender Analysis of Medications into Pharmacy Education," September 8, 2003, in Sydney, Australia.
- Following posting of completed materials to the Web site, a description of the project and an announcement to the AACP membership of the availability of the curriculum framework and the resource list was included in the April 2004 issue of the *AACP News*.
- A project description, along with descriptions of and links to the curriculum framework and resource list, was sent to members of the following groups:
 - Principal Investigators/Program Directors: Building Interdisciplinary Research Careers in Women's Health (BIRCWH; BIRCWH II);
 - Program Directors: National Centers of Excellence in Women's Health;
 - Program Directors: National Community Centers of Excellence in Women's Health; and
 - Principal Investigators/Program Directors: Specialized Centers of Research (ORWH SCOR).

A sample letter is included as Appendix VIII.

- A 90-minute special session on the Women's Health project was presented on Tuesday, July 13, 2004, during AACP's Annual Meeting in Salt Lake City, Utah, to share the results of the analysis of the extent to which women's health issues are included within the pharmacy curriculum; raise awareness of women's health issues and the need for pharmacists to be educated about those issues; promote the integration of women's health in pharmacy education; and promote the use of the curriculum framework and Federal resources. The session description read as follows:

A curricular framework for the inclusion of sex- and gender-related health issues in pharmacy and other health professions education programs will be introduced. This Federally-funded program (through HRSA) has also supported the development of a curricular resources sharing system as part of www.aacp.org that will be expanded to include resources in a wide array of content areas in support of faculty in their education roles. Presenters will share the results of an analysis of the extent to which women's health issues are included within the pharmacy curriculum; discuss opportunities to integrate women's health issues into pharmacy education, clinical services, community outreach, and research; and promote the use of the curriculum framework and Federal resources to facilitate instruction in women's health.

Susan Meyer (project director) gave an introduction and overview of the project, followed by a presentation by Erin McSherry (project staff) on the process for accessing the curriculum framework and resource list. Janet McCombs, Pharm.D., of the Content Expert Panel and the University of Georgia, spoke about her experience with women's health as part of the pharmacy curriculum at her institution. Rosalie Sagraves, Pharm.D., a member of the project Steering Committee and Dean of the College of Pharmacy at the University of Illinois-Chicago, contributed a presentation on interprofessional research, clinical service, community outreach and education, and professional development initiatives at UIC within the National Center of Excellence in Women's Health.

- A 90-minute special session was held during the AACP annual meeting in July 2005, in which the results of the Women's Health in the Pharmacy Curriculum Project were presented. The session description is as follows:

A curricular framework for the inclusion of sex- and gender-related health issues in pharmacy and other health professions education programs will be introduced. This Federally-funded project (through HRSA) has also supported the development of a curricular resources sharing system on the AACP Web site that has been expanded to include resources in a wide array of content areas in support of faculty in their education roles.

Speakers included project director Susan M. Meyer, Ph.D. and Content Expert Panel members Damary Castanheira Torres, Pharm.D. (St. John's), Shareen Y. El-Ibiary, Pharm.D. (University of California at San Francisco), and Laura Hansen, Pharm.D. (University of Colorado).

SUMMARY AND CONCLUSIONS

Following the completion of the previous work on women's health curricular content in medical, dental, and nursing programs, this pharmacy-specific project was designed to examine the extent to which women's health issues are included in the pharmacy curriculum, facilitate the expansion and enhancement of women's health instruction in pharmacy education with a curriculum framework that organizes recommended required and elective content into modules, and facilitate the expansion and enhancement of women's health instruction in health professions education. The examination of the extent to which women's health issues are included in the curriculum was a similar aim across each of the profession-specific projects, although the methods for gathering the information and conducting the analysis differed across projects. A review of Web-based curricular information and course descriptions at the U.S. colleges and schools of pharmacy found that at least 34 colleges and schools (40 percent of the 89 U.S. colleges and schools of pharmacy) include instruction specific to women's health issues within the curriculum. It is possible that the methods used to identify women's health content at colleges and schools of pharmacy failed to identify the true extent to which the content is included because of the variability in the level of detail and presentation format for Web-based course content descriptions across colleges and schools of pharmacy.

The project in pharmacy was also similar in nature to the other projects in that a recommended content outline for colleges and schools to use in designing and implementing instruction in women's health was developed. The pharmacy project however, expanded this resource so that it might serve as framework or guide for curriculum development (content; instructional process and strategies; and assessment methods) through the inclusion of not only content areas organized across the life span, but also desired student outcome abilities within each of the content areas.

The project in pharmacy differed significantly from the other projects in that a process for developing recommendations for the advancement of women's health in the profession of pharmacy, for follow-up activities by academic pharmacy, or for future activities of Federal agencies was not included. Rather, the intent of the project was to expand and enhance women's health instruction across pharmacy programs by facilitating awareness of and access to resources available from the Federal co-sponsors of the project. Based on input from interested faculty members, the project Steering Committee, and members of the Content Expert Panel participating in the project, the following principles were developed to guide the development of the instructional materials and resources:

- The curriculum framework should be comprehensive, organized across and by lifespan stages, and be "outcome-based."
- Resource materials and other guidance documents should be a flexible in design as possible to allow use by multiple institutions and to facilitate integration of the content into existing courses to greatest extent possible, rather than suggesting the addition of new focused required or elective courses.
- Materials should be Web-accessible.

The Web-based AACP Curricular Resource Center is structured to provide access to the resources, including the curriculum guide and the lists of resources available from Federal

agencies. Located at on the AACP Web site at <http://www.aacp.org/site/page.asp?TrackID=&VID=1&CID=1037&DID=6098>, the Curricular Resource Center also houses, or provides links to, instructional resources in clinical prevention and population health, pharmacogenomics, managed care, Medicare/medication therapy management services, patient safety, geriatrics, reaching underserved populations, and social and administrative sciences.

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6. U.S. Department of Labor, Bureau of Labor Statistics. *Occupational Employment and Wages, May 2004*. 29-1051 Pharmacists. Available at <http://www.bls.gov/oes/current/oes291051.htm>. Accessed August 18, 2005.

APPENDIX I: PARTICIPATING ORGANIZATIONS

Founded in 1900, the **American Association of Colleges of Pharmacy (AACCP)** is the national organization representing pharmacy education in the United States. The organization serves member colleges and schools and their respective faculties by acting as their advocate at the national level, by providing forums for interaction and exchange of information among members, by recognizing outstanding performance among its member educators, and by assisting member colleges and schools in meeting their mission of educating and training pharmacists and pharmaceutical scientists. The Association recognizes a special responsibility to provide leadership in advancing and enhancing the quality of education and training in its member colleges and schools while respecting the diversity inherent among them. The pharmacy education community in fall 2004 included 89 colleges and schools with pharmacy degree programs accredited by the Accreditation Council for Pharmacy Education, over 43,000 professional degree students, 2,900 students enrolled in graduate studies and more than 3,600 full-time faculty.

The **American Pharmacists Association (APhA)** is the national professional society of pharmacists and represents practitioners from all pharmacy practice settings, scientists and pharmacists in training. With more than 50,000 members, it maintains affiliation with all State pharmacy associations and has a student chapter at each college and school of pharmacy.

The **American College of Clinical Pharmacy (ACCP)** is a professional and scientific society that provides leadership, education, advocacy, and resources enabling clinical pharmacists to achieve excellence in practice and research. ACCP's membership comprises practitioners, scientists, educators, administrators, students, residents, fellows, and others committed to excellence in clinical pharmacy and patient pharmacotherapy. ACCP functions to foster the growth of clinical pharmacy services and promote their value in all health care settings; facilitate the performance, dissemination, and application of pharmaceutical and biomedical research; and promote excellence in all facets of clinical pharmacy education.

The **University of Illinois at Chicago College of Pharmacy** is a regular institutional member of AACCP with a long-standing focus and expertise in women's health research and education. The UIC/HHS National Center of Excellence in Women's Health emphasizes partnership across disciplines and professions, involving collaborative efforts across six health professional colleges at the University of Illinois at Chicago (pharmacy, nursing, medicine, public health, dentistry, and health and human development services); partnerships between academia and the community, and partnerships between health care provider and patient. UIC's Center of Excellence focuses on four core areas: provision of comprehensive health services; community-based awareness, involvement, and education; research to advance knowledge across the life span; and curriculum development and leadership for women.

The focus of the **Arizona Center for Education and Research on Therapeutics (Arizona CERT)** is to improve therapeutic outcomes and reduce adverse events caused by drug interactions, especially those affecting women. The CERT is also focused on identifying and understanding mechanisms for drug-induced arrhythmias. These goals are accomplished by basic and clinical research programs and a variety of educational efforts.

APPENDIX II: WOMEN'S HEALTH PROJECT STEERING COMMITTEE

Susan M. Meyer, Ph.D., project director
Senior Vice President
American Association of Colleges of
Pharmacy

Lucinda L. Maine, Ph.D.
Executive Vice President
American Association of Colleges of
Pharmacy

Peggy Kuehl, Pharm.D.
Former Director of Education and Member
Services
American College of Clinical Pharmacy

Rosalie Sagraves, Pharm.D.
Dean, College of Pharmacy
University of Illinois at Chicago

Marietta Anthony, Ph.D.
Associate Vice President for Women's
Health Research
University of Arizona Center for Education
and Research on Therapeutics

**Joan Stanley, Ph.D., Director of
Education Policy**
American Association of Colleges of
Nursing

M. Brownell Anderson, M.S.
Senior Associate Vice President
Division of Medical Education
Association of American Medical Colleges

Sabrina Matoff-Stepp, M.A.
Director
U.S. Department of Health
and Human Services
Health Resources and Services
Administration
Maternal and Child Health
Bureau
Office of Women's Health

**Rosalyn Correa-de-Araujo, M.D., M.Sc.,
Ph.D.**
Director
U.S. Department of Health
and Human Services
Agency for Healthcare Research and Quality
Office of Women's Health
and Gender-Based Research

Wanda K. Jones, Dr.P.H.
Deputy Assistant Secretary for Women's
Health
U.S. Department of Health and Human
Services
Office on Women's Health

Vivian W. Pinn, M.D.
Associate Director for Research on
Women's Health
Director
U.S. Department of Health
and Human Services
National Institutes of Health
Office of Research on Women's Health

Susan F. Wood, Ph.D.
Director
U.S. Department of Health and
Human Services
Food and Drug Administration
Office of Women's Health

APPENDIX III: WOMEN'S HEALTH CONTENT EXPERT PANEL

Mary Berg, Ph.D. (deceased)
University of Iowa
College of Pharmacy

Richard J. Bertin, Ph.D.
Board of Pharmaceutical Specialties

Candace S. Brown, Pharm.D.
University of Tennessee
College of Pharmacy

Damary C. Castanheira Torres, Pharm.D.
St. Johns University
College of Pharmacy and Allied Health
Professions

Stuart T. Haines, Pharm.D.
University of Maryland
School of Pharmacy

Laura B. Hansen, Pharm.D.
University of Colorado Health Sciences
Center
School of Pharmacy

Karim A. Calis, Pharm.D., M.P.H.
U.S. Department of Health
and Human Services
National Institutes of Health

Leisa L. Marshall, Pharm.D.
Mercer University
Southern School of Pharmacy

H. Anthony McBride, Ph.D.
Samford University
McWhorter School of Pharmacy

Janet McCombs, Pharm.D.
University of Georgia
College of Pharmacy

Mary G. Mihalyo, Pharm.D.
Duquesne University
Mylan School of Pharmacy

Louise S. Parent-Stevens, Pharm.D.
University of Illinois at Chicago
College of Pharmacy

Charles D. Ponte, Pharm.D.
West Virginia University
School of Pharmacy

Ronald J. Ruggiero, Pharm.D.
University of California-San Francisco
School of Pharmacy

APPENDIX IV: U.S. COLLEGES AND SCHOOLS OF PHARMACY RECOGNIZED BY THE ACCREDITATION COUNCIL FOR PHARMACY EDUCATION (AUGUST 2004)

Alabama

Auburn University
Harrison School of Pharmacy
Auburn University, AL

Samford University
McWhorter School of Pharmacy
Birmingham, AL

Arizona

Midwestern University, Glendale
College of Pharmacy
Glendale, AZ

University of Arizona
College of Pharmacy
Tucson, AZ

Arkansas

University of Arkansas for Medical Sciences
College of Pharmacy
Little Rock, AR

California

Loma Linda University
School of Pharmacy
Loma Linda, CA

University of California, San Diego
College of Pharmacy
La Jolla, CA

University of California, San Francisco
College of Pharmacy
San Francisco, CA 94143

University of the Pacific
Thomas J. Long School of Pharmacy and
Health Sciences
Stockton, CA

University of Southern California
School of Pharmacy
Los Angeles, CA

Western University of Health Sciences
College of Pharmacy
Pomona, CA

Colorado

University of Colorado
School of Pharmacy
Denver, CO

Connecticut

University of Connecticut
School of Pharmacy
Storrs, CT

District of Columbia

Howard University
College of Pharmacy, Nursing and Allied
Health Sciences
Washington, DC

Florida

Florida Agricultural and Mechanical
University
College of Pharmacy & Pharmaceutical
Sciences
Tallahassee, FL

Nova Southeastern University
College of Pharmacy
Fort Lauderdale, FL

Palm Beach Atlantic University
School of Pharmacy
West Palm Beach, FL

University of Florida
College of Pharmacy
Gainesville, FL

**APPENDIX IV: U.S. COLLEGES AND SCHOOLS OF PHARMACY RECOGNIZED BY THE ACCREDITATION COUNCIL FOR PHARMACY EDUCATION (AUGUST 2004)
continued**

Georgia

Mercer University
Southern School of Pharmacy
Atlanta, GA

South University
School of Pharmacy
Savannah, GA

University of Georgia
College of Pharmacy
Athens, GA

Idaho

Idaho State University
College of Pharmacy
Pocatello, ID

Illinois

Midwestern University
Chicago College of Pharmacy
Downers Grove, IL

University of Illinois, Chicago
College of Pharmacy
Chicago, IL

Indiana

Butler University
College of Pharmacy and Health Sciences
Indianapolis, IN

Purdue University
School of Pharmacy and Pharmacal Sciences
West Lafayette, IN

Iowa

Drake University
College of Pharmacy and Health Sciences
Des Moines, IA

University of Iowa
College of Pharmacy
Iowa City, IA

Kansas

University of Kansas
School of Pharmacy
Lawrence, KS

Kentucky

University of Kentucky
College of Pharmacy
Lexington, KY

Louisiana

University of Louisiana at Monroe
College of Pharmacy
Monroe, LA

Xavier University of Louisiana
College of Pharmacy
New Orleans, LA

Maryland

University of Maryland
School of Pharmacy
Baltimore, MD

Massachusetts

Massachusetts College of Pharmacy and
Allied Health Sciences – Boston
Boston, MA

Massachusetts College of Pharmacy and
Allied Health Sciences – Worcester
Worcester, MA

Northeastern University
Bouvé College of Pharmacy and Health
Sciences
Boston, MA

**APPENDIX IV: U.S. COLLEGES AND SCHOOLS OF PHARMACY RECOGNIZED BY THE ACCREDITATION COUNCIL FOR PHARMACY EDUCATION (AUGUST 2004)
continued**

Michigan

Ferris State University
College of Pharmacy
Big Rapids, MI

University of Michigan
College of Pharmacy
Ann Arbor, MI

Wayne State University
Eugene Applebaum College of Pharmacy and
Health Sciences
Detroit, MI

Minnesota

University of Minnesota
College of Pharmacy
Minneapolis, MN

Mississippi

University of Mississippi
School of Pharmacy
University, MS

Missouri

St. Louis College of Pharmacy
St. Louis, MO

University of Missouri, Kansas City
School of Pharmacy
Kansas City, MO

Montana

University of Montana
School of Pharmacy & Allied Health
Sciences
Missoula, MT

Nebraska

Creighton University
School of Pharmacy and Health Professions

Omaha, NE

University of Nebraska
College of Pharmacy
Omaha, NE

Nevada

University of Southern Nevada
Nevada College of Pharmacy
Henderson, NV

New Jersey

Rutgers, the State University of New Jersey
Ernest Mario School of Pharmacy
Piscataway, NJ

New Mexico

University of New Mexico
College of Pharmacy
Albuquerque, NM

New York

Long Island University
Arnold & Marie Schwartz College of
Pharmacy and Health Sciences
Brooklyn, NY

St. John's University
College of Pharmacy and Allied Health
Professions
Jamaica, NY

University of Buffalo, State University of
New York
School of Pharmacy and Pharmaceutical
Sciences
Buffalo, NY

Union University
Albany College of Pharmacy, Albany, NY

**APPENDIX IV: U.S. COLLEGES AND SCHOOLS OF PHARMACY RECOGNIZED BY THE ACCREDITATION COUNCIL FOR PHARMACY EDUCATION (AUGUST 2004)
continued**

North Carolina

Campbell University
School of Pharmacy
Buies Creek, NC

University of North Carolina, Chapel Hill
School of Pharmacy
Chapel Hill, NC

Wingate University
School of Pharmacy
Wingate, NC

North Dakota

North Dakota State University
College of Pharmacy
Fargo, ND

Ohio

Ohio Northern University
College of Pharmacy
Ada, OH

Ohio State University
College of Pharmacy
Columbus, OH

University of Cincinnati Medical Center
College of Pharmacy
Cincinnati, OH

University of Toledo
College of Pharmacy
Toledo, OH

Oklahoma

Southwestern Oklahoma State University
School of Pharmacy
Weatherford, OK

University of Oklahoma
College of Pharmacy
Oklahoma City, OK

Oregon

Oregon State University
College of Pharmacy
Corvallis, OR

Pennsylvania

Duquesne University
Mylan School of Pharmacy
Pittsburgh, PA

Lake Erie College of Osteopathic Medicine
School of Pharmacy
Erie, PA

University of the Sciences in Philadelphia
Philadelphia College of Pharmacy
Philadelphia, PA

Temple University
School of Pharmacy
Philadelphia, PA

University of Pittsburgh
School of Pharmacy
Pittsburgh, PA

Wilkes University
Nesbitt School of Pharmacy
Wilkes-Barre, PA

Puerto Rico

University of Puerto Rico
School of Pharmacy
San Juan, PR

**APPENDIX IV: U.S. COLLEGES AND SCHOOLS OF PHARMACY RECOGNIZED BY THE ACCREDITATION COUNCIL FOR PHARMACY EDUCATION (AUGUST 2004)
continued**

Rhode Island

University of Rhode Island
College of Pharmacy
Kingston, RI

South Carolina

Medical University of South Carolina
College of Pharmacy
Charleston, SC

University of South Carolina
College of Pharmacy
Columbia, SC

South Dakota

South Dakota State University
College of Pharmacy
Brookings, SD

Tennessee

University of Tennessee
College of Pharmacy
Memphis, TN

Texas

Texas Southern University
College of Pharmacy & Health Sciences
Houston, TX

Texas Tech University
School of Pharmacy
Amarillo, TX

University of Houston
College of Pharmacy
Houston, TX

University of Texas, Austin
College of Pharmacy
Austin, TX

Utah

University of Utah
College of Pharmacy
Salt Lake City, UT

Virginia

Hampton University
School of Pharmacy
Hampton, VA

Shenandoah University
Bernard J. Dunn School of Pharmacy
Winchester, VA

Virginia Commonwealth University
School of Pharmacy
Richmond, VA

Washington

University of Washington
School of Pharmacy
Seattle, WA

Washington State University
College of Pharmacy
Pullman, WA

West Virginia

West Virginia University
School of Pharmacy
Morgantown, WV

Wisconsin

University of Wisconsin, Madison
School of Pharmacy
Madison, WI

Wyoming

University of Wyoming
School of Pharmacy
Laramie, WY

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS

Conducted in August 2004, the methods used for the Web-based search were to browse the pharmacy college/school page first; search for course catalog or schedule (if unable to find on school Web page, go to university main page and search for catalog); scan for women's health stand-alone course, and scan for mention of women's health within courses.

Auburn University (AL)

Women's health instruction mentioned in two faculty biographical sketches.

University of Arizona (AZ)

First-year colloquium course, Perspectives on Health Care: Current Issues and Trends, in which issues such as the influence of demographics, **gender**, age, diversity, behavior, education, politics and socioeconomic conditions on the health of Americans are explored.

Midwestern University, Glendale (AZ)

Elective course, New Drug Product Development, in which topics discussed include the **inclusion of women and children in clinical trials**, regulation of dietary supplements and generic drugs, FDA approval of new drugs, RX to OTC switch, product labeling, and direct to consumer marketing.

Elective course, **Advanced Topics in Women's Health**, the goal of which is to build upon the student's basic knowledge of reproductive physiology; explores the uniqueness of the female gender on the physiology of normal function and pathophysiology; integrates various areas of basic science with clinical sciences; and provides a forum for discussion of various topics in women's health.

University of Arkansas for Medical Sciences (AR)

Elective course, **Topics in Women's Health**, exposes the student to a variety of topics related to women's health including the prevention, diagnosis and management of conditions that may be unique to women. **Sex and gender-based differences in health and disease** are also presented.

University of California, San Francisco (CA)

Elective course, **Women's Health Issues**, focuses on the women's health issues such as premenstrual syndrome/premenstrual dysphoric disorder, HIV and pregnancy, hormone replacement therapy, contraception, fertility, and breast cancer.

University of the Pacific (CA)

Required course, General Pharmaceutical Care II, which covers pharmaceutical care for the patient with problems related to hematology, oncology, allergies, eyes, ears, nose and throat, **gender issues**, and palliative care.

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS continued

University of Southern California (CA)

Elective course, **Pharmacy Practice in Women's Health**, the emphasis of which is the pharmaceutical care of women patients, including the therapeutic and psychosocial factors, and current research in women's health.

Required course, Therapeutics VI, which includes integrated teaching of biomedical chemistry, pharmacology, clinical pharmacokinetics and therapeutics of drugs with an emphasis on pharmaceuticals affecting the endocrine diseases, systems, and **women's health**.

Western University of Health Sciences (CA)

Required course, Pharmacy Practice VI, provides students with the knowledge, skills and attitudes to manage pharmacotherapeutic regimens in endocrine-related diseases, such as diabetes and thyroid disorders, and **reproductive medicine. Gender-related health concerns are also addressed.**

University of Florida (FL)

Required course, Dose Optimization II, facilitates student learning of how to integrate and apply pharmacokinetic principles in the formulation of rational dosage regimens and in adjustment of existing regimens. Special emphasis is given to patient factors such as disease states, age, **gender** and body weight, and drug and drug product factors such as formulation and drug interaction.

Pharmacists and Women's Health Web site. Site was developed as a result of a Women's Health Pharmaceutical Care Certificate Program (WHPCCP). The programs have been developed by Health Education Resources in Philadelphia, Pennsylvania, through an educational grant from Wyeth Ayerst Laboratories. The site is maintained through the University of Florida, College of Pharmacy and news articles are summarized by current pharmacy students. The practice cases are submitted by community pharmacists participating in the project and by the project faculty. <http://www.cop.ufl.edu/safezone/root/womenshealth/>

Nova Southeastern University (FL)

Elective course, **Women's Health**, covers topics of importance in women's health. Issues that affect women of all ages, from the early reproductive years to the late postmenopausal years, are examined. The subject matter encompasses a variety of topics, including contraception, substance abuse, infertility, health in pregnancy, menopausal health, and eating disorders. The role of the pharmacist in the optimal provision of drug therapy and preventive health is emphasized.

Mercer University (GA)

Elective course, **Women's Health**, is designed to enable the student to develop an understanding of issues of importance in women's health, including health promotion and prevention, health problems with a higher prevalence or a different presentation in women than men, cultural diverseness and women's health, and women's health policy and research. Problems unique to women's health and therapy important in the pharmacist's provision of pharmaceutical care to female patients will be emphasized.

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS continued

University of Georgia (GA)

Elective course, **Women's Health Care**, covers medications most often used in OB/GYN, preparation for patient education and counseling in women's health, and patient monitoring parameters in the areas of obstetrics and gynecology.

Elective course, Special Populations in Pharmacy Practice, which includes the management and treatment of diseases and medical conditions specific to geriatrics, pediatrics, **women's health** and minority health. Pathophysiology, pharmacology, pharmacotherapeutics, pharmacokinetics, and physical assessment are integrated using patient cases.

University of Illinois at Chicago (IL)

Required course, Principles of Drug Action and Therapeutics IV, includes the integration of medicinal chemistry, pharmacology, pharmacotherapeutics, pharmacokinetics, and toxicology in the areas of **women's and men's health**, respiratory disorders, diabetes and pediatrics.

Midwestern University, Chicago (IL)

Required course, Pharmacotherapeutics I, introduces the student to a systemic approach for patient assessment, physical assessment methods, and home diagnostic techniques. Topics include preventative medicine, self-limiting diseases with a focus on over-the-counter medications, gastrointestinal diseases, and **women's health issues**.

Elective course, Controversies in Pharmacotherapy, uses interactive discussion, debates, and presentations to review current literature on controversies in pharmacotherapy in the areas of diabetes, heart failure, hyperlipidemia, and **women's health**.

Elective course, **Women's Health**, elective concentrates on specific issues related to the optimal delivery of women's health care, including gender-related differences in treating women, wellness and prevention over the female life span, diseases uniquely affecting women, and pharmacotherapy and psychosocial aspects of women's health. Community service is encouraged.

Butler University (IN)

Elective course, **Pharmacy and Health Sciences: Women's Health**.

Elective experiential rotation, **Women's Health Rotation**.

University of Iowa (IA)

Required course, Endocrine and Ophthalmology: **Women's & Men's Health Therapeutics**, covers pharmacotherapy for endocrine and ophthalmology disorders. It reviews disorders, treatment goals, treatment plans, patient counseling, and monitoring patient outcomes.

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS continued

University of Maryland (MD)

Elective course, **Women's Health**, explores a broad range of health issues that women face throughout the life cycle. Specific issues/disorders to be discussed will include contraception, infertility, vaginal disorders, gestational diabetes, eclampsia, menopause, and osteoporosis.

University of Michigan (MI)

Required course, Pathophysiology and Therapeutics I, focuses on dermatology, ophthalmic, otic and oral health, renal physiology, fluids and electrolytes, acid-base balance, nutrition, herbs and dietary supplements, **women's health (vaginitis, drugs in pregnancy and lactation, infertility, contraception, osteoporosis, menopause and hormone replacement therapy)**, and vaccinations.

St. Louis College of Pharmacy (MO)

Elective course, **Women's Health Pharmacotherapy**, provides students with a focused introduction to the pharmacotherapy of women's health. Students integrate knowledge of gender-specific issues and pharmacotherapy in selecting and evaluating pharmacologic therapy for common illnesses in women. Emphasis is placed on rendering care to women in the community pharmacy setting.

Required course, Therapeutics IV, emphasizes integration of principles of pathophysiology, pharmacology and pharmacokinetics in the treatment of oncologic disorders, organ transplantation, pediatric diseases, **women's health problems**, infectious diseases, and disorders in geriatric patients.

University of Southern Nevada (NV)

Elective course, **Women's & Men's Health**.

Rutgers University (NJ)

Elective course, **Women's Health Issues**, in which students investigate, explore, and discuss issues important to women's health. Includes an in-depth presentation of the female reproductive system, along with related diseases and disorders.

University at Buffalo (NY)

Required courses, Pharmacotherapeutics I, II, III, and IV, include major disease problems and use of therapeutic interventions in areas such as: fluids and electrolytes, nephrology, cardiology, pediatrics, neurology, endocrinology, infectious diseases, psychiatry, immunology, rheumatology, hematology, pulmonary, gastroenterology, critical care, dermatology, **women's health**, nutrition, and oncology. Course material typically includes disease symptomology, current concepts regarding appropriate drug treatment, patient monitoring, drug mechanism/effects/pharmacokinetics, and drug interactions.

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS continued

Campbell University (NC)

Elective course, **Women's Healthcare Issues**, focuses on topics of particular impact in providing health care to women, including gender influence in drug trials; hormone-replacement therapy; contraception; osteoporosis; breast cancer; and autoimmune diseases.

Duquesne University (PA)

Elective course, **Issues in Women's Health**, is designed to introduce the student to issues relevant to women's health, including conditions or diseases that are unique, more common, and more serious to women.

Lake Erie College of Osteopathic Medicine (PA)

Required courses, Pharmacotherapeutics I, II, III, and IV, covers pathophysiology and therapeutics by organ system, starting with the non-prescription drugs and medical devices, and dermatology, followed these organ systems and content areas: respiratory, cardiovascular, degenerating diseases, genital urologic diseases, endocrinology/gastro-intestinal diseases, critical care, infectious diseases, neurology, psychiatry, oncology, and **women's health**.

University of the Sciences in Philadelphia (PA)

Elective course, **Women's Health: Common Therapeutic Topics**, offers an introduction to the pharmacotherapeutic management of women's health related issues, including menstrual abnormalities, endometriosis, lactation, sexually transmitted diseases/pelvic inflammatory disease, HIV, and cancer chemoprophylaxis/genetic testing.

Wilkes University (PA)

Required course, **Pharmacotherapeutics X: Endocrine Disorders & Women's Health Issues**.

Medical University of South Carolina (SC)

Required course, Disease Processes and Therapeutics III, provides an organ-based approach to pharmaceutical care and disease management and covers neurology, **women's health**, psychiatry, rheumatology, dermatology, pediatrics, geriatrics, endocrinology, and drug interactions.

South Dakota State University (SD)

Elective course, **Women and Children's Health**, covers disease and drug related issues pertaining to women's and children's health.

University of Tennessee (TN)

Elective course, Women's Health Selective, focuses on a woman's life phases, including the young adult, midlife, mature and advanced years. Course content includes discussion on role and life cycle issues that affect health, patient/pharmacist interactions, physiology, sexuality and reproduction. Particular emphasis is placed on medication monitoring due to gender differences in disease presentation and incidence, pharmacokinetics, adverse effects, and on patient education.

APPENDIX V: WOMEN'S HEALTH COURSES AND CONTENT AT U.S. PHARMACY COLLEGES AND SCHOOLS continued

University of Houston (TX)

Elective experiential rotation, **Women's Health Therapeutics**, is a structured pharmacy experience where the student masters the skills necessary to optimize drug therapy outcomes for obstetric/gynecology patients.

Virginia Commonwealth University (VA)

Elective course, **Women's health: Pharmacotherapeutic Issues and Controversies**, addresses the prevention and management of disease in women and is designed to expand upon the women's health topics presented in the pharmacotherapy course series.

University of Washington (WA)

Required course, Applied Pharmacokinetics, covers the pharmacokinetics of specific drugs and the influence of age, weight, **sex**, and disease states on patient-specific dosage regimens

University of Wisconsin, Madison (WI)

Elective Course, **Women's Health Pharmacotherapy**, includes the pharmacotherapy of disease prevention and treatment for women, including pharmacotherapy unique to women and the pharmacotherapy of illnesses that are more prevalent in women than in men. Additional women's health issues are addressed.

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE

I. SEX AND GENDER FACTORS AND DIFFERENCES: WHAT IS WOMEN'S HEALTH?	
A. Overview and General Health Concerns	
	<p>Explain the differences between the terms “gender” and “sex” as they apply to practice and research.</p> <p>Demonstrate an understanding of basic pharmacology (e.g., possible differences between women and men in terms of hepatic enzyme function, fat and water distribution, pharmacokinetics, pharmacodynamics, pharmacogenomics, and chronopharmacology).</p> <p>Discuss conditions and diseases that specifically affect women and those that affect women and men differently.</p> <p>Discuss drug-related effects that specifically affect women and those that affect women and men differently.</p> <p>Describe the role of hormones across the life cycle; addressing endogenous and exogenous hormones and their effects on drug interactions, drug metabolism, and therapeutic outcomes.</p> <p>Discuss <i>Healthy People 2010</i> and the implications of the report contents and the public health perspectives related to women’s health.</p> <p>Discuss sex differences in physiology and metabolism from adolescence to old age.</p> <p>Identify general health concerns such as level of physical activity, smoking, alcohol abuse, and drug abuse.</p> <p>Define drug-drug, drug-herb, and drug-food interactions. Describe how these manifest across the various life phases.</p> <p>Discuss why women use botanical and dietary supplements more than men do and describe women’s use patterns related to nontraditional medicine.</p> <p>Discuss compounding of special products for individual female patients.</p> <p>Discuss laboratory tests and studies unique to women (e.g., endometrial biopsy, PAP).</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

B. Socioeconomics of Women’s Health	
1. Social Issues	<p>Identify cultural, ethnic, racial differences among women.</p> <p>Discuss health care practices that negatively affect women.</p> <p>Recognize and discuss physical, sexual, and mental abuse, and resultant psychosocial and self-esteem issues.</p> <p>Discuss health care for special populations such as lesbians, transgender women, rural, immigrant, disabled, minority, and elderly women.</p>
2. Economic Issues	<p>Demonstrate an understanding of how women’s decisions about health for themselves and their families affect their spending.</p> <p>Discuss salary and promotion disparities in the workplace and their potential impact on health issues.</p> <p>Identify how/to what extent self-management and family care of chronic conditions are affected by women’s responsibilities with family and work.</p> <p>Discuss insurance issues that affect women’s ability to get medications.</p> <p>Identify direct to consumer marketing that specifically targets women; the portrayal of women in prescription drug ads; portrayal of different stereotypes in prescription drug advertisements.</p>
C. Pharmacist–Patient Interaction	
	<p>Define the pharmacist’s role in promoting women’s health.</p> <p>Demonstrate an understanding of how pharmacists should interact with female patients with some emphasis on male practitioner interaction with female patients; different communication styles.</p>
D. Research Related Issues	
	<p>Describe the history of regulatory issues related to gender and sex-related health care.</p> <p>Discuss the NIH Office of Research on Women’s Health “Women’s Research Agenda for the 21st Century.”</p> <p>Demonstrate an understanding of research that is being undertaken to determine health care related differences between women and men.</p> <p>Discuss informed consent issues for the inclusion of women in research studies.</p> <p>Evaluate studies that address health differences between women and men; problems with the literature in this area.</p> <p>Discuss issues regarding the recruitment of adequate numbers of women, especially minority women, into clinical studies.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

II. LIFESPAN ISSUES IN WOMEN'S HEALTH: INFANTS:→ REPRODUCTIVE YEARS	
A. Infants and Girls	
	<p>Demonstrate knowledge of infectious diseases, esp. UTIs.</p> <p>Identify and discuss physical, sexual, and mental abuse, and discuss the issue of mandatory reporting by pharmacists of such abuse.</p>
B. Adolescents and Non-Pregnant Women in Their Reproductive Years	
1. Diseases	<p>Discuss infectious diseases: HIV/AIDS, vaginitis (e.g. yeast, candidiasis, trichomoniasis, bacterial vaginosis), sexually transmitted diseases, and pelvic inflammatory disease.</p> <p>Demonstrate knowledge of cancers: cervical, ovarian, breast, endometrial/uterine; melanoma.</p> <p>Identify diseases that primarily or solely affect women: pelvic pain, simple functional ovarian cysts, endometriosis, fibroids, polycystic ovarian disease, premature ovarian failure, fibrocystic breast disease, toxic shock.</p> <p>Describe diseases that affect women differently than men: asthma, autoimmune diseases; cosmetic issues including acne, excessive hair growth, tanning, and other dermatologic problems; diabetes; obesity; eating disorders including anorexia and bulimia; irritable bowel syndrome and inflammatory bowel disease; epilepsy; interstitial cystitis; migraines and other headaches; psychiatric, psychosocial, and behavioral problems including depression; smoking, alcohol, substance abuse; anemia.</p> <p>*All disease states covered in therapeutics course(s) that are applicable should include treatment differences for women in this age category (e.g. asthma, autoimmune disorders, epilepsy, etc.) with reference to other treatment differences.</p>
2. Contraception	<p>Discuss all contraceptive methods including abstinence, natural family planning, prescription and nonprescription contraceptive methods, and emergency contraception.</p> <p>Demonstrate understanding of non-contraceptive benefits associated with the use of oral contraceptives.</p>
3. Menstruation	<p>Describe the complete menstrual cycle.</p> <p>Discuss the relationship between the menstrual cycle and bone health.</p> <p>Discuss disease states that may be worsened during menses, such as asthma and migraines.</p> <p>Describe menstrual disorders, such as primary and secondary amenorrhea, dysmenorrhea, premenstrual syndrome, peri-menopausal irregularities, menorrhagia, cramps.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

<p>4. General Health Concerns</p>	<p>Discuss nutrition and vitamin use.</p> <p>Discuss bone health, including building bone mass.</p> <p>Discuss skin health, including appropriate sun avoidance.</p> <p>Discuss the importance of physical exercise and minimal exercise requirements.</p> <p>Identify adverse effects seen in adolescent and non-pregnant women in their reproductive years associated with drug-drug, drug-herbal, and drug-food interactions.</p> <p>Demonstrate knowledge of other topics such as: Sexual disorders and libido problems, sexual abuse and domestic violence; including as care-giver; care-giver abuse related to vulnerable populations, including direct and passive abuse (withholding of medication, transportation, etc.) and pharmacists' role in recognizing abuse.</p> <p>Evaluate botanical/dietary supplements and OTCs for each disease state/treatment area; and relation to eating disorders.</p>
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III. LIFESPAN ISSUES IN WOMEN'S HEALTH: THE REPRODUCTIVE AGE: PREGNANT AND LACTATING WOMEN

A. Pregnancy Planning and Prenatal Care

	<p>Discuss prenatal care including pregnancy testing, nutrition/vitamins and management of pregnancy-related problems such as diabetes, hypertension (preeclampsia and eclampsia).</p> <p>Demonstrate knowledge of pregnancy planning/ "Preconception care" including when to stop contraception, use of ovulation predictors, vaccinations, folic acid, etc.</p> <p>Describe prenatal care including infectious diseases (e.g., group B Strep, herpes, bacterial vaginosis), hyperemesis gravidarum, Rh status, etc.</p>
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APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

B. Pregnancy and Postpartum Period	
	<p>Identify physiologic (e.g. organ changes), pharmacological, pharmacokinetic, and pharmacodynamic changes associated with pregnancy.</p> <p>Describe ectopic pregnancy and gestational trophoblastic disease.</p> <p>Demonstrate knowledge of normal pregnancy (including definitions such as parity, gravida, etc.) and common problems associated with pregnancy (e.g., morning sickness, constipation, heartburn, headaches, etc.) that require intervention by a pharmacist.</p> <p>Demonstrate knowledge of basic nutrition during pregnancy and lactation including the intake of calories, vitamins and minerals (e.g., iron, calcium, folic acid, etc.).</p> <p>Understand the unique nutrition concerns for a pregnant woman; for a breast-feeding woman.</p> <p>Understand the unique nutrition concerns for the infant, and how they relate to breastfeeding and infant formulas.</p> <p>Describe principles of drug transfer across the placenta.</p> <p>Describe principles of drug transfer into breast milk.</p> <p>Understand in depth the area of lactation.</p> <p>Discuss the lactation process including the pharmacokinetics of drugs during lactation.</p> <p>Discuss stimulation of breast milk production and breast milk suppression.</p> <p>Explain the concept of teratogenicity, including dose timing, and drugs and drug classes associated with teratogenic effects.</p> <p>Discuss preterm labor, and labor and delivery including labor induction.</p> <p>Discuss antenatal steroid use.</p> <p>Discuss postpartum hemorrhage.</p> <p>Discuss restarting contraception in the postpartum period: risks and benefits; postpartum depression.</p> <p>Discuss recurrent miscarriage.</p> <p>Discuss pharmacological abortion, including issues associated with potential conflicts between personal beliefs and professional responsibility, and legal issues.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

C. Diseases and Conditions	
	<p>Demonstrate knowledge of HIV/AIDS.</p> <p>Identify management of medical problems that may be exacerbated by pregnancy such as asthma, coagulation problems, epilepsy, GI conditions, psychiatric and psychosocial problems (anxiety, etc.)</p> <p>Discuss anemia.</p> <p>Discuss human papilloma virus (HPV) and abnormal pap smears.</p> <p>Discuss the management of high-risk pregnancies, including multiple gestation; HIV/AIDS, systemic lupus, and other immunosuppressed states; renal transplant; and patients with neurological deficits, such as myasthenia gravis.</p> <p>*All disease states covered in therapeutics course(s) that are applicable should include treatment differences for women in this age category. These include treatment differences for pregnant women who have diseases such as asthma, coagulation problems, diabetes, depression, epilepsy, infectious diseases, hypertension, etc. General principles about these disease states during pregnancy should be covered as a part of the general core; more in depth coverage should be reserved for an elective.</p>
D. General Health Concerns	
	<p>Identify adverse effects seen in women; drug-drug, drug-herbal, drug-food, etc. Interactions will be discussed for drug therapy discussed.</p> <p>Discuss infertility and its pharmacologic and non-pharmacologic treatment.</p> <p>Discuss sexual abuse and domestic violence; including as caregiver; caregiver abuse related to vulnerable populations, including direct and passive abuse (withholding of medication, transportation, etc.) and pharmacists' role in recognizing abuse.</p> <p>Evaluate botanical/dietary supplements and OTCs for each disease state/treatment area.</p>
E. Health and Wellness Promotion	
	<p>Counsel women about their specific needs in the reproductive years.</p> <p>Discuss potentially difficult pharmacist-patient interactions and counseling situations and how to handle them (e.g., request by a teen for emergency contraception).</p> <p>Discuss adoption and how to access the adoption system.</p> <p>Understand literature reviews of clinical studies during the reproductive period and how to address future needs.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

IV. LIFESPAN ISSUES IN WOMEN’S HEALTH: CLIMACTERIC, MENOPAUSE, POST-MENOPAUSAL WOMEN	
A. General Health Concerns	
	<p>Demonstrate knowledge of pharmacologic, pharmacokinetic, and pharmacodynamic changes associated with the climacteric/menopause and postmenopausal period of life.</p> <p>Discuss menopause including signs, symptoms and sequelae.</p> <p>Discuss non-hormonal management of menopausal symptoms.</p> <p>Discuss prevention of acute and long-term effects of a lack of estrogen post-menopause.</p> <p>Discuss the role of endogenous and exogenous androgens in women.</p> <p>Understand estrogen therapy/hormone therapy: risks and benefits; product selection and dosing; contemporary issues about hormone therapy and public understanding about the appropriate uses of hormone therapy.</p> <p>Identify adverse effects associated with drug-drug, drug-herbal, drug-food interactions.</p> <p>Evaluate multi-drug use in the elderly that affects their ability to self-manage chronic diseases.</p> <p>Explain the financial impact of aging on women and their health care.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

B. Diseases and Conditions	
	<p>Discuss general information about osteoporosis and its treatment; as well as treatment guidelines, controversies, and investigational agents used for this problem; osteoarthritis.</p> <p>Demonstrate knowledge of female cancers such as endometrial and ovarian cancer, colon, lung, and breast cancer: prevention and treatment.</p> <p>Discuss cardiac disease in men and women, including dyslipidemias, myocardial infarction, stroke, and hypertension.</p> <p>Evaluate diabetes, autoimmune and arthritis, dementia, and Alzheimer's Disease.</p> <p>Demonstrate knowledge of HIV/AIDS.</p> <p>Discuss urinary incontinence and other genitourinary problems; fibrosis.</p> <p>Describe cosmetic issues including adult acne and rosacea, excessive hair growth, and other dermatologic problems.</p> <p>Discuss cataracts and macular degeneration.</p> <p>Demonstrate knowledge of psychiatric, psychosocial, and behavioral problems that affect this age group; depression; causality.</p> <p>Discuss sexual disorders and libido problems; sexual abuse and domestic violence, caregiver abuse of vulnerable populations, including direct and passive abuse (withholding of medication, transportation), and pharmacists' role in recognizing abuse.</p> <p>Evaluate botanical/dietary supplements, OTCs, and non-pharmacologic treatment for each disease state/treatment area.</p> <p>*All disease states covered in therapeutics course(s) that are applicable should include treatment differences for women in this age category (e.g. autoimmune diseases and arthritis, cardiac disease, cancer, diabetes, etc.) with reference to other treatment differences, if known for other life span categories.</p>

APPENDIX VI: GENDER AND SEX-RELATED HEALTH CARE PHARMACY CURRICULUM GUIDE continued

C. Wellness and Health Promotion	
	<p>Discuss issues associated with pain management.</p> <p>Discuss nutrition and vitamin use; drug-nutrient interactions.</p> <p>Discuss the importance of physical exercise and minimal exercise requirements.</p> <p>Evaluate drugs in elderly and nursing home patients.</p> <p>Discuss literature reviews of clinical studies during this life period and how to address future needs.</p> <p>Counsel women about their specific needs during this time period.</p>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS

Agency for Healthcare Research and Quality (AHRQ) Women's Health Program

Mission:

The mission of the Agency for Healthcare Research and Quality (AHRQ) is to improve the safety, quality, effectiveness, and efficiency of health care for all Americans.

Web site: <http://www.ahrq.gov/research/womenix.htm>

Pathfinder page to consumer decision aids and clinical information on prevention and treatment: <http://www.ahrq.gov/research/womenpath.htm>

AHRQ Priority Areas on Women's Health:

- Enhancing the response of the health system to women's needs.
- Understanding gender differences.
- Understanding and eliminating disparities in health care.
- Empowering women to make better health care decisions.

AHRQ supports research on all aspects of women's health care, including quality, access, cost, and outcomes. A priority is given to identify and reduce disparities in the health care of minority women, address the health needs of women living in rural areas, and care for women with chronic illness and disabilities. AHRQ serves as a catalyst for change by promoting the results of research findings and incorporating those findings into improvements in the delivery and financing of health care. This important information is brought to the attention of policymakers, health care providers, and consumers who can make a difference in the quality of health care women receive.

Selected Products:

Hallmark Papers

Correa-de-Araujo, R. *A Wake-up Call to Advance Women's Health*. Article originally published in *Women's Health Issues* 2004;14:31-4. Copyright© 2004 by the Jacobs Institute of Women's Health. Agency for Healthcare Research and Quality, Rockville, MD.

<http://www.ahrq.gov/research/wmwakeup.htm>

Women and Medications - The *Journal of Women's Health* has published a special issue on improving the use and safety of medications in women, which was edited by Rosaly Correa-de-Araujo, M.D., M.Sc., Ph.D., AHRQ's Director of Women's Health and Gender-Based Research. The articles in this issue were based on discussions at an expert meeting called by Dr. Correa-de-Araujo to highlight gender differences in medication use. Topics of the articles include evidence for gender and racial differences in drug response, the role of biological rhythms in medication safety for women, geriatric pharmacotherapy, and strategies for reducing the risk of medication errors in women. The entire free issue is available from <http://www.liebertonline.com/toc/jwh/14/1?cookieSet=1>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Agency for Healthcare Research and Quality (AHRQ), Women's Health Program continued

Relevant Consumer Materials

Women: Stay Healthy at Any Age—Checklist for Your Next Checkup. AHRQ Publication No. APPIP03-0008, January 2004. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/ppip/healthywom.htm>

Women and Medicines: What You Need to Know. AHRQ Publication No. 03(05)-0019-A, April 2005. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/consumer/wommed.htm>

Surgery Choices for Women with Early-Stage Breast Cancer. Publication No. PHS 04-M053, August 2004. Rockville, MD, Agency for Healthcare Research and Quality. <http://www.ahrq.gov/consumer/brcanchoice.htm>

You Can Quit Smoking. Information kit for consumers. November 2003. U.S. Public Health Service. <http://www.ahrq.gov/consumer/tobacco/>

U.S. Preventive Services Task Force Relevant Recommendations for Women

Below is a link to relevant recommendations from the USPSTF. Additional information as well as links to recommendations can be found at <http://www.ahrq.gov/clinic/prevenix.htm>
U.S. Preventive Services Task Force. *Hormone Therapy for the Prevention of Chronic Conditions in Postmenopausal Women: Recommendation Statement.* AHRQ Publication No. 05-0576, May 2005. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/clinic/uspstf05/ht/htpostmenrs.htm>

Evidence Reports on Topics Relevant to Women:

Below are links to relevant evidence reports. Additional information as well as links to other evidence reports can be found at <http://www.ahrq.gov/clinic/epcix.htm>

Post-Myocardial Infarction Depression. May 2005. <http://www.ahrq.gov/clinic/epcsums/midepsum.htm>

The Use of Episiotomy in Obstetrical Care. May 2005. <http://www.ahrq.gov/clinic/epcsums/epissum.htm>

Perinatal Depression: Prevalence, Screening Accuracy, and Screening Outcomes. February 2005. <http://www.ahrq.gov/clinic/epcsums/peridepsum.htm>

Pharmacologic Management of Heart Failure and Left Ventricular Systolic Dysfunction: Effect in Female, Black, and Diabetic Patients, and Cost-Effectiveness (July 2003) <http://www.ahrq.gov/clinic/epcsums/hrtfailsum.htm>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Agency for Healthcare Research and Quality (AHRQ), Women's Health Program continued

Results of Systematic Review of Research on Diagnosis and Treatment of Coronary Heart Disease in Women (May 2003) <http://www.ahrq.gov/clinic/epcsums/chdwomsum.htm>

Diagnosis and Treatment of Coronary Heart Disease in Women: Systematic Reviews of Evidence on Selected Topics (May 2003) <http://www.ahrq.gov/clinic/epcsums/chdwtopsum.htm>

Vaginal Birth After Cesarean (VBAC) (March 2003)
<http://www.ahrq.gov/clinic/epcsums/vbacsum.htm>

Osteoporosis in Postmenopausal Women: Diagnosis and Monitoring (December 2002)
<http://www.ahrq.gov/clinic/epcsums/osteosum.htm>

Management of Prolonged Pregnancy (May 2002)
<http://www.ahrq.gov/clinic/epcsums/prolongsum.htm>

Management of Uterine Fibroids (July 2001) <http://www.ahrq.gov/clinic/epcsums/utersumm.htm>

Diagnosis and Management of Specific Breast Abnormalities (September 2001)
<http://www.ahrq.gov/clinic/epcsums/abnorsum.htm>

Fact Sheets, Program Briefs, and Other Products:

Women's Health Care in the United States: Selected Findings From the 2004 National Healthcare Quality and Disparities Reports. Fact Sheet. AHRQ Publication No. 05-P021. May 2005. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/qual/nhqrwomen/nhqrwomen.htm>

AHRQ Women's Health Highlights: Recent Findings. Program Brief. AHRQ Publication No. 05-P004, January 2005. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/research/womenh1.htm>

Health Care for Minority Women. Program Brief. AHRQ Publication No. 03-P020, May 2002. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/research/minority.htm>

Breast and Cervical Cancer Research Highlights. Program Brief. Agency for Healthcare Research and Quality, Rockville, MD. AHRQ Publication No. 03-P021, June 2003.
<http://www.ahrq.gov/research/breastca.htm>

Research Findings #17: Women in the Health Care System: Health Status, Insurance, and Access to Care. March 2002. Agency for Healthcare Research and Quality, Rockville, MD.
http://www.meps.ahrq.gov/papers/rf17_02-0004/rf17.htm

AHRQ Focus on Research: Health Care for Women. AHRQ Publication No. 02-M017, March 2002. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/news/focus/focwomen.htm>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Agency for Healthcare Research and Quality (AHRQ), Women's Health Program continued

Research on Cardiovascular Disease in Women. Program Brief. AHRQ Publication No. 04-P003, October 2003. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/research/womheart.htm>

Care of Women in U.S. Hospitals, 2000. HCUP Fact Book No. 3. AHRQ Publication No. 02-0044, October 2002. Agency for Healthcare Research and Quality, Rockville, MD.
<http://www.ahrq.gov/data/hcup/factbk3/factbk3.htm>

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Correa-de-Araujo, R. *A Wake-up Call to Advance Women's Health*. Article originally published in *Women's Health Issues* 2004;14:31-4. Copyright© 2004 by the Jacobs Institute of Women's Health. Agency for Healthcare Research and Quality, Rockville, MD.
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Bierman A, Clancy C. Making capitated Medicare work for women: policy and research challenges. *Women's Health Issues* 2000; 10(2): 59-69. (AHRQ (00-R025)

Clancy C, Bierman A. Quality and outcomes of care for older women with chronic disease. *Women's Health Issues* 2000; 10(4). (AHRQ 00-R059)

Altman B, Taylor A... Women in the health care system. Health status, insurance, and access to care. *MEPS Research Findings* no.17, November 2001. (AHRQ 02-0004)

Case C, Johantgen M, Steiner C. Outpatient mastectomy: clinical, payer, and geographic influences. *Health Services Research* 2001; 36(5): 869-84. (AHRQ02-R008)

Kass-Bartelmes B, Altman B, Taylor A. Disparities and gender gaps in women's health, 1996. *MEPS Chartbook* No.8 October 2001 (AHRQ 00-R010)

Bierman a, Haffer S, Hwang Y. Health disparities among older women enrolled in Medicare managed care. *Health Care Financing Review* 2001; 22(4): 187-98. (AHRQ 02-R006)

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Agency for Healthcare Research and Quality (AHRQ), Women's Health Program continued

Bierman A, Clancy C. Health disparities among older women: identifying opportunities to improve quality of care and functional health outcomes. *Journal of the American Medical Women Association* 2001; 56(4): 155-60. (AHRQ02-R023)

Farquhar C, Steiner C. Hysterectomy rates in the United States, 1990-1997. *Journal of the American College of Obstetrics and Gynecology* 2002; 99(2): 229-34. (AHRQ03-R004)

Farquhar C, Naom S, Steiner C. The impact of endometrial ablation on hysterectomy rates in women with benign uterine conditions in the United States. *International Journal on Technology Assessment in Health Care* 2002; 18(3):625-34. (AHRQ 02-0025)

Improving maternal; health care: the next generation of research on quality, content, and use of services. AHRQ, *Conference Summary Report*. 2002. (AHRQ02-0025)

Resources in Spanish <http://www.ahrq.gov/consumer/espanoix.htm>

AHRQ funding opportunities includes summaries, application deadlines, and links to guidance for all AHRQ programs. <http://www.ahrq.gov/fund/funding.htm>

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APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

U.S. Department of Health and Human Services Office on Women's Health (OWH)

Mission:

In the U.S. Department of Health and Human Services (HHS), Office on Women's Health (OWH) is the Government's champion and focal point for women's health issues, and works to redress inequities in research, health care services, and education that have historically placed the health of women at risk. The Office on Women's Health coordinates women's health efforts in HHS to eliminate disparities in health status and supports culturally sensitive educational programs that encourage women to take personal responsibility for their own health and wellness.

National Women's Health Information Center (NWHIC) Web site:

<http://www.womenshealth.gov>

Various publications can be ordered by calling 1-800-994-9662 or by visiting www.womenshealth.gov. There is no charge for this service.

Girl's Health: www.girlshealth.gov

For a list of **OWH's activities and publications** by topic:

<http://www.womenshealth.gov/owh/index.htm>

For **OWH publications:** <http://www.womenshealth.gov/OWH/pub/index.htm>

For **FAQs** on women's health (including Spanish): <http://www.womenshealth.gov/faq/index.htm>

Information on important **screenings for women's health:** <http://www.womenshealth.gov/tools/>
<http://www.womenshealth.gov/screeningcharts/index.htm>

Residencies in Women's Health: <http://www.womenshealth.gov/owh/resfel/index.htm>

Popular publications include:

Women's Health Daybook: <http://www.womenshealth.gov/pub/daybook.2005/index.htm>

A Lifetime of Good Health: Your Guide to Staying Healthy

<http://www.womenshealth.gov/pub/05prevguide.pdf>

Pick Your Path to Health calendars: <http://www.womenshealth.gov/pypth/education.html>

Information on campaigns:

<http://www.womenshealth.gov/owh/campaigns.htm>

Information on the National Centers of Excellence in Women's Health:

<http://www.womenshealthgov/COE/index.htm>

Information on the National Community Centers of Excellence in Women's Health:

<http://www.womenshealth.gov/owh/CCOE/index.htm>

Information on the National Rural Frontier Women's Health Coordinating Centers:

<http://www.womenshealth.gov/owh/RFCC/index.htm>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Food and Drug Administration (FDA) Office of Women's Health (OWH)

Mission:

The Food and Drug Administration's Office of Women's Health (OWH) serves as a champion for women's health both within and outside the agency. To achieve its goals, OWH:

- Ensures that FDA functions, both regulatory and oversight, remain gender sensitive and responsive;
- Works to correct any identified gender disparities in drug, device and biologics testing, and regulation policy;
- Monitors progress of priority women's health initiatives within FDA;
- Promotes an integrative and interactive approach regarding women's health issues across all the organizational components of the FDA; and
- Forms partnerships with government and non-government entities, including consumer groups, health advocates, professional organizations, and industry, to promote FDA's women's health objectives.

Web site: <http://www.fda.gov/womens>

OWH Science Program/Initiatives:

- Pioneering New Frontiers in Women's Health: OWH Science Program
<http://www.fda.gov/womens/science.html>
- Pregnancy Initiatives: Enhancing Health for Mother & Child:
<http://www.fda.gov/womens/registries/default.htm>
- Encouraging Safe Participation: Women in Clinical Trials:
<http://www.fda.gov/womens/trials.html>
- Managing Information: Demographic Information and Data Repository (DIDR):
<http://www.fda.gov/womens/didr/default.htm>

For general science information, you can also check out www.science.gov, which will connect you with FirstGov for science, a site that links to U.S. Government Science and Technology information.

OWH Outreach Program:

- Promoting Health Through Education: <http://www.fda.gov/womens/tttc.html>

OWH Fact Sheets:

- Information for Health Care Providers: <http://www.fda.gov/womens/info-health.html>
- Information for Researchers: <http://www.fda.gov/womens/info-researchers.html>
- Menopause and Hormones: <http://www.fda.gov/womens/menopause/default.htm>

OWH Library-Publications on Women's Health Issues:

- Important Women's Health Topics: <http://www.fda.gov/womens/informat.html>
- Related Women's Health Publications: <http://www.fda.gov/womens/pubs.html>

For more women's health publication materials, you may also check <http://www.womenshealth.gov>.

For more information:

Phone: 301-827-0350

Fax: 301-827-0926

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

Health Resources and Services Administration (HRSA) Office of Women's Health (OWH)

Mission:

HRSA's mission is to improve the nation's health by ensuring equitable access to comprehensive, culturally competent, quality health care for all. The guiding principle of HRSA OWH is "Healthy Women Build Healthy Communities." The HRSA OWH provides a cross-cutting and coordinated focus to eliminate gender-based disparities, and ensure that all women receive comprehensive, culturally competent, quality health care.

Web site: <http://www.hrsa.gov/womenshealth/>

OWH Initiatives:

- Bright Futures for Women's Health and Wellness Initiative:
<http://www.hrsa.gov/womenshealth/brightfut.htm>
- Women's Health in Health Professions Curricula
- Lupus Training in the Border Region
- National Domestic Violence Hotline Evaluation

OWH Overview Sheets

- Bright Futures for Women's Health and Wellness Overview
<http://www.hrsa.gov/womenshealth/bfwhw.htm>

HRSA Publications:

- Women's Health USA Databooks
<http://www.hrsa.gov/womenshealth>
- Bright Futures for Women's Health and Wellness, Physical Activity and Healthy Eating Guide and Wallet Card for Young Women
<http://hrsa.gov/womenshealth/mybrightfuture/menu.html>

The annual HRSA Grant Preview includes summaries, application deadlines, and links to guidance for all HRSA programs with competitions. The Preview is posted on www.hrsa.gov.

For more information:

HRSA Information Center

<http://www.ask.hrsa.gov/index.cfm>

1-888-ASK-HRSA (275-4772)

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

National Institutes of Health (NIH) Office of Research on Women's Health (ORWH)

Mission:

The Office of Research on Women's Health (ORWH) (a) advises the NIH Director and staff on matters relating to research on women's health; (b) strengthens and enhances research related to diseases, disorders, and conditions that affect women; (c) ensures that research conducted and supported by NIH adequately addresses issues regarding women's health; (d) ensures that women are appropriately represented in biomedical and biobehavioral research studies supported by the NIH; (e) develops opportunities for and supports recruitment, retention, re-entry, and advancement of women in biomedical careers; and (f) supports research on women's health issues.

ORWH Web site: <http://www4.od.nih.gov/orwh/>

ORWH Fact Sheet:

- http://www4.od.nih.gov/orwh/ORWH_Factsheet.pdf

ORWH Interdisciplinary Initiatives:

- Scientific Centers on Research on Sex and Gender Factors Affecting Women's Health (SCOR) and Building Interdisciplinary Research Careers in Women's Health (BIRCWH) <http://www4.od.nih.gov/orwh/resPrograms.html>

ORWH Research and Programs:

- Co-funded research, support for ongoing research, scientific workshops and special projects sponsored by ORWH such as Chronic Fatigue Syndrome and breast implants <http://www4.od.nih.gov/orwh/research.html>

Inclusion of Women in NIH-supported Clinical Research:

- Comprehensive reports on tracking and inclusion, the NIH Outreach Notebook and FAQs, NIH Inclusion policy <http://www4.od.nih.gov/orwh/inclusion.html>

Women in Biomedical Careers:

- Links to 1999 AXXS and Wish-net, general information on ORWH career development programs and initiatives <http://www4.od.nih.gov/orwh/career.html>

General NIH Web Resources on Women's Health:

- Information on upcoming events sponsored by ORWH, the NIH Women's Health exhibit and videocasts of past seminars and meetings. Also, includes the main link to NIH (www.nih.gov).
- ORWH events: <http://www4.od.nih.gov/orwh/events.html>
- Videocasts: <http://www4.od.nih.gov/orwh/video.html>

APPENDIX VII: COMPILED LIST OF INSTRUCTIONAL RESOURCES AVAILABLE FROM FEDERAL CO-SPONSORS continued

National Institutes of Health (NIH), Office of Research on Women's Health (ORWH) continued

NIH Web Resources on Menopausal Hormone Therapy:

- National Institutes of Health <http://www.nih.gov/PHTindex.htm>
- Medline Plus <http://www.nlm.nih.gov/medlineplus/hormonereplacementtherapy.html>
- National Heart, Lung & Blood Institute <http://www.nhlbi.nih.gov/health/women/index.htm>
- Menopause Management and Hormone Therapy <http://www4.od.nih.gov/orwh/menopause.html>
- National Cancer Institute <http://www.cancer.gov/newscenter/estrogenplus>
- A Working Document: NIH Research and Other Efforts Related to the Menopausal Transition (March 2005) <http://orwh.od.nih.gov/menopauseupdate2005.pdf>
- National Institute on Aging <http://www.niapublications.org/engagepages/menopause.asp>
- National Center for Complementary and Alternative Medicine <http://nccam.nih.gov/health/alerts/menopause>
- Women's Health and Menopause: A Comprehensive Approach <http://www.nhlbi.nih.gov/health/heart/other/menopaus/index.htm>

ORWH Publications:

- Section includes *Agenda for Research on Women's Health in the 21st Century*, ORWH publication order form, articles and reports about women of color, sex and gender factors in medical research, recruitment and retention, breast implant research, and much more. <http://www4.od.nih.gov/orwh/pubs.html>

For More Information:

Email: ODORWH-RESEARCH@mail.nih.gov

Phone: (301) 402-1770

Fax: (301) 402-1798

APPENDIX VIII: SAMPLE LETTER SENT TO PROGRAM DIRECTORS AND PRINCIPAL INVESTIGATORS ASSOCIATED WITH KEY FEDERALLY-FUNDED WOMEN'S HEALTH INITIATIVES



AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY
1426 Prince Street • Alexandria, Virginia 22314 • 703/739-2330 • fax: 703/836-8982

Date: April 2, 2004

To: **Program Directors: National Centers of Excellence in Women's Health**

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From: Susan M. Meyer, Ph.D.

Senior Vice President

American Association of Colleges of Pharmacy

Re: Resources to Facilitate Integration of Women's Health into Health Professions Education and Training

The American Association of Colleges of Pharmacy, as director of the “Health Professions Training, Education, and Competency: Women’s Health in the Pharmacy School Curriculum” project, has produced two new resources to support the integration of women’s health issues into health professions education programs. The two-year project, now in its sixth quarter of development, involves the analysis of the current status of women’s health issues within the professional degree program in pharmacy, including content and instructional delivery format. Using the results of the analysis, a framework for a curriculum in women’s health has been outlined to guide the integration of women’s health issues into the pharmacy curriculum and will be used to inform the development of curricular resources to support women’s health-related instruction. The framework is available on the AACP Web site at: <http://www.aacp.org/site/tertiary.asp?TRACKID=&VID=2&CID=879&DID=5673>

In addition, a link to the curriculum framework is posted on the Health Resources and Services Administration (HRSA) Web site at: http://www.hrsa.gov/WomensHealth/wh_relatedpub.htm

In cooperation with the Federal sponsors of the project at HRSA, a list of women’s health-related publications, initiatives, contact information, and grant and funding opportunities available from Federal women’s health offices is now posted on the AACP Web site in the Resources, Women’s Health section: <http://www.aacp.org/site/page.asp?VID=1&CID=879&DID=5620&TrackID=>

The project is funded by the U.S. Department of Health and Human Services, Health Resources and Services Administration; National Institutes of Health, Office of Research on Women’s Health; the Agency for Healthcare Research and Quality; the Food and Drug Administration, Office of Women’s Health; and the HHS Office on Women’s Health. For more information on the project, contact Susan Meyer, Ph.D., AACP senior vice president, at smeyer@aacp.org.

cc: Sabrina Matoff, M.A. (HRSA Office of Women’s Health) smatoff@hrsa.gov