Pioneering A Universal Curriculum: A Look at Six Disciplines Involved in Women’s Health Care

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This paper describes a multidisciplinary project of curriculum development and implementation at one university. Universal learning concepts for six health care disciplines in women’s health, including nurse-midwifery, are being piloted in an online classroom environment. This multidisciplinary team approach to education distributes the work load, invites experts to share resources, and avoids the duplication of resources across the university departments and schools. This project provides midwifery faculty the opportunity to introduce a new educational paradigm and model the midwifery approach to holistic health care. J Midwifery Womens Health 2009;54:306–313 © 2009 by the American College of Nurse-Midwives.

keywords: curriculum mapping, medical education, midwifery, multidisciplinary education, nurse-midwifery education, reusable learning units, women’s health

INTRODUCTION

Historically, educators in midwifery, medicine, and other allied health disciplines have based curriculum development on foundational clinical skills. Curriculum has traditionally been delivered via lecture, modular format, and modeling direct patient care. Health care educators today face many new challenges within complex care settings, such as meeting outcome measures, less patient contact, decreasing financial support, need for increasing technological skills, and educator overload. In addition, today’s health care delivery systems have been affected by narrowed standards of care, greater demands by regulatory and safety agencies, an increasingly complex patient population, expanding technology, and fiscal challenges.1–5 Each of these challenges affects the development and delivery of quality curriculum by placing constraints on educators. This provides an opportunity for educators to explore new multidisciplinary educational paradigms that maximize resources.

In most universities, faculties are working separately to achieve their goals of teaching the basic knowledge and competencies required for their respective disciplines. There are many health care disciplines that prepare practitioners to provide primary health care to women of childbearing age. Those teaching in midwifery, advanced practice nursing, physician assistant training, and graduate medical education confront similar barriers to identification, development, and delivery of quality curricula. When faculties join together as a multidisciplinary team to identify common curricular concepts and develop and deliver curricula in a group effort, both faculty and learners benefit. This type of approach will broaden students’ learning experiences while best using resources within an individual institution. This paper describes a pilot project that attempts to develop curricula based on identified universal concepts in women’s health at one university institution.

Interdisciplinary and Multidisciplinary Education in Health Care

The terms interdisciplinary and multidisciplinary, when used in reference to education, have been used interchangeably. For purposes of this paper, these terms are viewed separately. Interdisciplinary education involves two or more distinct disciplines that come together for a specific common goal. In achieving this common goal, the disciplines become integrated. Multidisciplinary education brings together several disciplines at one time for a common goal, while each discipline remains distinct.6

The concept of interdisciplinary education is not new in institutions of higher learning or in health care education. In the United Kingdom, undergraduate interdisciplinary studies illustrate improved understanding of other’s professional roles, attitudes, and skills.7,8 In the United States, interdisciplinary education has historically improved patient outcomes and aided in professional respect between disciplines.4 The concept of interdisciplinary clinical teams can be traced back to New York City in 1948, when a team of physicians, physical therapists, and social workers provided home health care services. At this time, federal funding provided for interdisciplinary practice teams. Those funds have long since been depleted.4

Many universities in the United States have ongoing efforts to establish and support interdisciplinary health profession educational efforts. One example is the University of Washington, where a Center for Health Sciences Interprofessional Education and Research has been established. This center supports the Institute of Medicine vision statement for health professions education by providing patient-centered care. Students may choose to participate in interprofessional courses, funded projects, or community clinical projects.9
Another example is the Delta Health Education Partnership, which is a multistate and multiversity consortium supported by The Robert Wood Johnson Foundation. The partnership provides community-based educational programs for the education, recruitment, and retention of primary care health providers in the lower Mississippi Delta Region. It provides interdisciplinary clinical education and distance education for students in three disciplines: family nurse practitioner, certified nurse-midwife, and physician assistant. Five courses have been developed by consortium faculty to date: health policy, role development in advanced practice, pathophysiology, pharmacology, and advanced health assessment. Although faculty from each discipline approved and created the curricula in an interdisciplinary fashion, reports of the project do not describe efforts to compare and contrast core competencies for the three disciplines.

The Hartford Institute for Geriatric Nursing identified that little is known about geriatric competencies across disciplines even though there has been a 20-year history of interdisciplinary geriatric clinical training in the Department of Veterans Affairs. In a study to address this, the authors compared similarities and differences in geriatric competencies in nursing, dentistry, medicine, pharmacy, and social work, and found a high degree of congruency in the competencies. This is one example of a multidisciplinary approach to these distinct disciplines. It is also an example of mapping core competencies for multiple disciplines in health education, but it does not address efforts to identify universal concepts for development of shared core curricula for multiple disciplines.

At New York University, leaders implemented a creative solution to solve barriers in health care education, including a shortage of qualified educators. This university created a College of Nursing within the College of Dentistry. Core competencies for the disciplines of nurse practitioner and dental and medical education were collected and compared. The comparison of nurse practitioner and dental competencies resulted in 38% of the competencies being exactly alike in wording or very similar in goal development. A greater overlap was found when comparing dentistry to medicine and medicine to nursing. This could be explained by the medical school learning objectives, which were used as core competencies, being less specific than dental and nursing objectives. This multidisciplinary approach illustrates similarities between the disciplines while establishing distinctions within each.

Despite these examples of successful interdisciplinary educational projects and courses in health care education, none of these models illustrate the development of entire didactic curricula for use with multiple disciplines. The interdisciplinary model may be difficult to implement for such a massive endeavor because of scheduling conflicts and time constraints among students and faculty in each discipline. Other barriers, such as faculty and administrative attitudes, physical facilities, and evaluation within nursing and medical education, have prevented the identification of a common body of knowledge. By using a multidisciplinary approach to identifying and developing curricula on a larger scale, it may be possible to develop a body of knowledge that supports learning foundational knowledge and skills for clinical practice. If learners from multiple health care disciplines that share similarities in core competencies could learn in a shared delivery format for common educational goals, it could result in enhanced clinical interdisciplinary practice in the future. These learners would be exposed to a similar foundation of knowledge and approach to problem solving and the use of critical thinking skills. By using a multidisciplinary approach for the standardization of some educational components, the challenges in health care education may be met with greater success.

### CURRICULUM DEVELOPMENT

Each of six disciplines of women’s health care was invited to form a team. The group members developed a vision statement: “As educators and practitioners from various health care disciplines who prepare students to provide health care to women, we support a standardized knowledge base for students from multiple disciplines. This multidisciplinary educational vision is based on interacting disciplines engaged in a mutual goal of providing quality primary health care to women of reproductive age through standardized curriculum and skills training and providing opportunities for research.”

The short-term purpose of this project was to identify universal concepts outlined from the national core competencies for six disciplines in women’s health and to begin developing curricula based on these concepts. Core competencies are the essential knowledge, skills, and behaviors that are required of each discipline for entry into practice. The six disciplines involved were nurse-midwifery students, third-year medical students, family nurse practitioner students, physician assistant students, obstetrics and gynecology interns, and family medicine interns. Faculty from each discipline came together to identify universal learning concepts and clinical skills that would lead to shared curricula development.

The long-term purpose was to implement multidisciplinary curricula in an online format that could be used
Curriculum mapping is a broad diagrammatic representation or view of the taught curriculum. It identifies key elements and illustrates the relationship between these elements, giving educators and students a clear understanding of the expectations. The key components of curriculum mapping include learning outcomes, learning opportunities, assessment, and course content. Learning outcomes are what the educator wants the student to learn. The learning opportunity is the environment in which the information is delivered. The content is the information or concept provided to the student, and the assessment illustrates the student’s competency. A curriculum map may represent a single course activity, an entire course, or the relationship between multiple courses in a field of study.

Instead of having six educators from the various disciplines each identify concepts and curricula maps, a team approach was used to relate common concepts within the six disciplines that would then be mapped. Concept mapping is a technique for visualizing the relationship between concepts by diagrams or listings. For example, all disciplines in women’s health need to be familiar with breast health as a concept. Although a woman’s health care provider can be from many different disciplines, the subjective and objective information necessary to diagnose and establish a management plan for a specific breast health issue does not change. By comparing and contrasting all core competencies for breast health, universal concepts for learning can be identified. The concept of breast health can be mapped further into additional concepts, diagnoses, and management approaches that use hallmarks of care.

### PROJECT PROCESS

National core competencies for nurse-midwifery students, third-year medical students, family nurse practitioner students, physician assistant students, interns in obstetrics and gynecology, and interns in family medicine were collected (Table 1).

Each set of core competencies was then reviewed by faculty and compared for commonalities and areas of divergence in women’s health by using a hybrid of concept mapping. The actual core competencies were copied and pasted into tables based on concepts (breast health, for example). These tables were shared among faculty who identified common concepts among the disciplines. Each set of core competencies had similar themes, but some are more detailed and include more specific knowledge or skills.

Faculty from each of the disciplines agreed that health promotion, disease prevention, interpretation of laboratory data and diagnostic tests, accurate performance of physical examination, identification of differential diagnoses, and development of management plans, including anticipatory guidance, were all necessary when moving forward to develop a core curriculum. Faculty also agreed that it was just as important for all learners to gain an understanding of patient-centered care, cultural competencies, the use of effective communication, and collaborative practice. It is interesting that the hallmarks of care chosen by faculty from six disciplines in women’s health are reflective of the Hallmarks of Midwifery; each discipline found value in including these in curricula. The Core Competencies in Midwifery, first developed and published in 1978 by the American College of Nurse-Midwives, have

### Table 1. Sources for Core Competencies Specific to Each of Six Disciplines

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Source of Core Competencies</th>
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</thead>
<tbody>
<tr>
<td>Nurse-midwifery student</td>
<td>The American College of Nurse-Midwives’ Core Competencies for Basic Midwifery Practice</td>
</tr>
<tr>
<td>Medical student</td>
<td>The Association of Professors of Gynecology and Obstetrics guidelines for medical student</td>
</tr>
<tr>
<td>Family nurse practitioner</td>
<td>Nurse Practitioner Primary Care Competencies in Specialty Areas established by the United States Department of Health and Human Services, Division of Nursing</td>
</tr>
<tr>
<td>Family medicine intern</td>
<td>East Carolina University’s competencies for obstetrics and gynecology, which are based on</td>
</tr>
<tr>
<td>Obstetrics and gynecology</td>
<td>East Carolina University’s Department of Obstetrics and Gynecology PGY1 Educational Objectives, which are developed from the Residency Educational Curriculum Objectives from the Council on Resident Education in Obstetrics and Gynecology</td>
</tr>
<tr>
<td>Physician assistant student</td>
<td>The American Academy of Family Physicians’ Recommended Core Educational Guidelines for Family Practice Residents Maternity and Gynecologic Care</td>
</tr>
</tbody>
</table>

PGY1 = Postgraduate year 1.
### Table 2. Core Competencies in Breast Health from Six Disciplines in Women’s Health Care

<table>
<thead>
<tr>
<th>Concept</th>
<th>Nurse-Midwifery Student</th>
<th>Medical Student</th>
<th>Family Nurse Practitioner Student</th>
<th>Physician Assistant Student</th>
<th>Obstetrics and Gynecology Intern</th>
<th>Family Medicine Intern</th>
</tr>
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<tr>
<td></td>
<td>1. Health promotion and disease prevention—Independently manages primary health screening and health promotion of women from the perimenopausal through the postmenopausal periods</td>
<td>a. Develop a differential diagnosis for common breast diseases, including mastalgia, palpable masses, and nipple discharge.</td>
<td>A. Assessment of Health Status</td>
<td>A. Applies knowledge of midwifery practice that includes, but is not limited to, the following:</td>
<td>p. 22 Continuity Clinics Core Content Unit 5: III. D. galactorrhea</td>
<td>p.2 Knowledge: G. Prevention/early detection 2.b. breast/mammography (REPEATED from Primary &amp; Preventive Care)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Describe the optimal approach to the evaluation and management of common breast problems.</td>
<td>2. Assesses...(c) women’s reproductive health, including, but not limited to, sexual health…</td>
<td>B. Diagnosis of Health Status</td>
<td>p.22-23 Continuity Clinics Technical Skills: 2. Perform and/or assist FNA team with breast cyst aspiration.</td>
<td>Maternity and Gynecologic Care p.1. A. Knowledge of diagnosis and management 3.f. breast health &amp; diseases of the breast</td>
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<td></td>
<td></td>
<td>III. Perform a sex-, gender-, and age-appropriate physical examination.</td>
<td>3. Nationally defined screening recommendations to promote health and detect/prevent disease.</td>
<td>III. D. Galactorrhea</td>
<td>2. Perform and/or assist FNA team with breast cyst aspiration.</td>
<td>3. breast cyst aspiration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f. Perform an accurate breast exam.</td>
<td>17</td>
<td>2. Perform and/or assist FNA team with breast cyst aspiration.</td>
<td>21</td>
<td></td>
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<tr>
<td>VI.2. (i.) Common Malignancies—Breast Cancer</td>
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<td></td>
<td>a. Educate women about known risk factors for breast cancer and assess risk using the Fail Model.</td>
<td>a. Provide counseling regarding modification of lifestyle factors that may reduce breast cancer risk.</td>
<td>c. Identify high-risk women who may benefit from intensive screening and referral to a high-risk clinic for consideration of genetic testing.</td>
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<tr>
<td></td>
<td></td>
<td>b. Provide counseling regarding modification of lifestyle factors that may reduce breast cancer risk.</td>
<td>c. Discuss and implement age- and risk-appropriate recommendations for mammographic screening and clinical breast exams.</td>
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<td></td>
<td></td>
<td>c. Discuss and implement age- and risk-appropriate recommendations for mammographic screening and clinical breast exams.</td>
<td>d. Identify high-risk women who may benefit from intensive screening and referral to a high-risk clinic for consideration of genetic testing.</td>
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<tr>
<td></td>
<td></td>
<td>d. Identify high-risk women who may benefit from intensive screening and referral to a high-risk clinic for consideration of genetic testing.</td>
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**FNA** = fine needle aspiration.
undergone changes over time that reflect both professional and historic changes in midwifery practice and health care in the United States and are reflective of the Institute of Medicine goals.\textsuperscript{17,23}

One example of the multidisciplinary core competencies comparison tables is illustrated in Table 2. The core competencies for breast health for each discipline are listed. After common concepts were identified, core competencies that correlated with that concept were matched for each of the disciplines. This led to the development of universal concepts, which then led to curricula development.

During this entire process, the group mapped core competencies from conception through menopause. However, the initial work of developing curricula was limited to care of women of childbearing age, including obstetric and non-obstetric care. Obstetric care was linked to the broad concepts of antepartum, intrapartum, and postpartum care, and non-obstetric care for women of childbearing age was linked to family planning/preconception, gynecologic, and primary/preventive care (Figure 1). These universal concepts were further mapped from all the core competencies or learning objectives that were common across disciplines. For example, the concept of gynecologic care relates to the concept of breast health, which in turn relates to several diagnostic concepts, one of which is fibroadenoma. An example of one concept that was developed for a clinical case study using curriculum mapping is shown in Figure 2. The learning outcomes are listed as learner objectives, learning tasks, and teaching points. The learning opportunity is an online clinical case presentation and the assessment consists of an online pre- and posttest. This example of curriculum mapping illustrates a single course activity, or single learning unit.

\textbf{CASE-BASED LEARNING WITH REUSABLE LEARNING UNITS}

Faculty from the multidisciplinary team identified case-based learning as the most appropriate method for
delivering curricula. Historically, providers have presented patient case histories to teach learners in a passive manner. This evolved into a problem-based learning approach, which is a more sophisticated way of teaching and uses a higher level of cognition. In problem-based learning, the learner must also synthesize information in an active role, which uses critical thinking skills. The learner must also evaluate the learning and then apply the learned knowledge. Case-based learning can be viewed as an extension of problem-based learning. Case-based learning stimulates and motivates learners. Research shows that Web-based case studies improve clinical problem-solving skills by improved posttest scores and is a natural way for physicians (and other allied health professionals) to learn.

The team decided that the curriculum would be delivered in an online format because it would be easily accessible. Adult learners from all disciplines can benefit from online, self-directed curriculum, whether they are high-tech and computer savvy or traditional "brick and mortar" learners. The online curriculum used for this project is housed in a computer-based classroom using a Web-based server for the delivery of content. Such programs can be used to enhance traditional face-to-face classroom interactions or to compliment the delivery of online courses. The online class has evidence-based Web links and journal articles that are housed in this repository.

In developing case-based scenarios from the identified universal concepts and providing opportunities for learning outcomes with assessment tools, the faculty generates reusable learning units, or small, discrete units, or "chunks" of knowledge, which can be recycled and easily updated. A goal was set for each learning unit to be completed by students in 20 minutes. During this time, the learner should be able to complete the pretest, read through the case, take a posttest, and complete an evaluation survey about the activity. Students are able to access these cases to broaden their exposure to more clinical scenarios and augment their developing skills both during clinical assignments and outside the clinic setting. Faculty may choose to use these reusable learning units as an adjunct to enhance existing lectures, journal clubs, and clinical experiences, or to replace outdated curricula.

To support faculty in the development of case-based learning units, a tool was developed by the lead midwife to guide the faculty through the process of curriculum mapping of individual concepts. This tool, "How to Develop a Clinical Case Study," is a stepwise approach that assures consistency with educators from multiple disciplines. There are seven steps. First, the learners were identified and a needs assessment was completed; the learners from the six disciplines were identified at the beginning of this project. The faculty then chooses a concept to be developed from the concept map and develops educational/learner objectives. The purpose of writing objectives is to make explicit the expected outcomes of a learning event and to establish accountability between the instructor and learner or between the learner and himself/herself. Specific measurable objectives are essential for determining outcomes in the assessment.

The next step is to develop learning tasks. Learning tasks are specific questions or statements of inquiry that the learner will need to answer in order to achieve the objectives and are specific to the case at hand. The fifth step is to develop teaching points or answers to the learning tasks that meet the learner objectives. These should address the clinical decision-making process and provide specific points for teaching the learner about the concept.

Next, the faculty describes the patient and develops details for a clinical case summary. This should be as brief as possible while providing enough detail for the learner to make an informed clinical decision and meet the learner objectives and learning tasks. The format chosen for documentation is the subjective, objective, assessment, and plan (SOAP). Images, laboratory results, or video clips may be used to provide this information to the learner. The last section of the case study lists evidence-based references from all areas of allied health and resources available online through the university's health science library for the learner's further investigation.

Each completed clinical case is reviewed and edited by the multidisciplinary faculty team. Evaluation tools are then developed for each learning unit. The complete case is then uploaded to the online classroom and made available to learners. To date, 10 clinical cases are being edited, and two reusable learning units are being piloted, with one group of learners. Evaluation surveys have not yet been collected.

**BARRIERS**

It is challenging to step out of the traditional educational paradigm to develop and implement a project that involves members from various departments and schools within a university setting representing separate disciplines. The use of language, time limits, planning constraints, and the lack of an existing model for a similar curriculum development project were the most notable barriers faced by this team. Members addressed some of these barriers in the initial stage by building a solid foundational structure to guide effective group efforts. These included establishing a vision statement, project goals, and clearly defining terminology. For example, interpretation of what a clinical case is differed among members. This led one member to develop a blueprint for developing a case study. Organizing meeting times and creating access to shared information involves careful planning and persistence. The faculty team members had conflicting schedules that made it difficult to have a majority meeting. E-mail communication and setting up a shared communication Web site in conjunction with meetings assisted with the process of overcoming this barrier. Educators are overloaded with clinical and educational duties, and time is a commodity.
Developing clinical cases does take time. All members of the multidisciplinary faculty team need to be invested enough to devote time to the development of cases. It is important that everyone involved see the benefits for students, faculty, and each discipline’s educational program. Also, because there is no known model for a multidisciplinary curriculum project of this magnitude, there was no conceptual ground on which to build. It was necessary for this team to build from the ground up. In establishing a process, the most specific concepts were often identified before the broader concepts were realized.

In anticipation of applying for grant monies for continuation of this project, future barriers were identified. Each school and department within the university has separate budgets with varying guidelines. It will be difficult to manage a grant budget that involves multiple disciplines. Revenue streams will need to be negotiated between departments for equitable overhead and distribution. Because of increased institutional financial demands with fewer resources, productivity outcome measures for faculty have been established in educational and clinical settings. This places an added demand on faculty time. When developing multidisciplinary projects, it is imperative that the value and time commitment be recognized by both administrators and faculty in order to support faculty efforts through the realistic allocation of time and resources. If barriers can be identified and removed, a multidisciplinary approach to curricula development using this new educational paradigm could lead to multidisciplinary curricula across university settings in the United States.

FUTURE USES

A future use for this project would be for the curricula to be developed into virtual clinics and communities for more sophisticated electronic or Web-based learning. The multiple online cases will form a repository of clinical case scenarios about individual mock patients and families that may be used for simulated learning in “virtual” or online clinics and communities. Learners could eventually interact with a particular simulated patient, family, or community through clinical case scenarios on multiple occasions over time. This future virtual learning environment could provide educational opportunities for a multitude of other disciplines, such as nutrition, exercise physiology, and social work. This type of project would support interdisciplinary and multidisciplinary education in an environment that promotes critical thinking skills and teamwork. A virtual community of clinical cases with a real-time simulation lab would allow learners from various disciplines to have a safe environment in which to make mistakes and to learn before entering the clinical setting.

There is enormous value in an educational paradigm that provides the opportunity for midwifery educators to lead the way in modeling midwifery care. The holistic approach that midwives have historically provided is now being recognized by medicine. Changes are being instituted in medical education that require a more patient-centered approach with clearer educational outcome measures. By identifying the commonalities in the disciplines, educators and administrators may realize the value of shared responsibilities in developing and implementing multidisciplinary curricula in the future, thereby breaking through some of the barriers that health care educators face today.

REFERENCES


