

# Breezing Up—An Interdisciplinary Health Professions Course for High School Juniors and Seniors and College Freshmen

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Recruiting students into the health professions is an ever growing problem as young people are faced with many attractive options for career choices. At the same time, a rapidly growing elderly population will require more health professionals to maintain the health system. To address this recruitment issue an interdisciplinary health professions course delivered to high schools and college campuses in North Dakota via the Internet was developed at the University of North Dakota (UND) School of Medicine and Health Sciences (SMHS). The participating high schools embedded the course in the health professions curriculum and students were given the option of receiving college credit. The course features presentations by professionals representing 16 different health professions and were developed using a new software called Macromedia Breeze™ that allows for easy recording of PowerPoint™ audio presentations and inputting video content into the presentation. Blackboard™ was utilized for course management.

**ABBREVIATIONS:** LRSC = Lake Region State College; OCMEO = Office of Continuing Medical Education and Outreach; SMHS = School of Medicine and Health Sciences; UND = University of North Dakota.

**INDEX TERMS:** healthcare shortage; health professions recruitment; online course delivery.

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As Americans age and expectations for healthcare grow, shortages have developed leading to a decrease in the quality of care as well as an increase in cost.<sup>1,2</sup> Rural communities are experiencing an even greater problem as they have limited ability to compete for the health professionals available.<sup>3</sup> North Dakota, with a size approximating one third of Texas and less than 650,000 in population, is experiencing this phenomenon and anticipates the problem to worsen. A variety of solutions have been proposed from developing career ladders to importing health workers from foreign countries.<sup>4</sup> A significant suggestion has been to work with high schools to familiarize students with health careers. Another solution, proposed by Edward Salsberg in a published report of the Mibank Memorial Fund and the Reforming States Group, was the development of innovative methods for the delivery of educational training such as the Internet and personal computers.<sup>4</sup>

The University of North Dakota School of Medicine and Health Sciences Office of Continuing Medical Education and Outreach (OCMEO) has developed a unique distance learning course to familiarize North Dakota high school students and college freshmen with various health career op-

**Table 1.** Medicine 100: Introduction to the Health Professions, spring semester 2005

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**Online Course Coordinator:** Kylie Behm BBA, Education Coordinator, OCMEO

Week	Topic	Week	Topic
1.	Physical therapy	9.	Nursing
2.	Radiologic technician	10.	Social work
3.	Sports medicine	11.	Pharmacy
4.	Physician assistant	12.	Clinical laboratory science
5.	Cytotechnology	13.	Biomedical communications
6.	Communications sciences	14.	Optometry/disorders
7.	Occupational therapy	15.	Nutrition/ dietetics
8.	Public health administration	16.	Medicine

**Table 2.** Medicine 100: Introduction to the Health Professions, one credit for high school juniors and seniors and college freshmen

**Description:** Introduction to the roles, ethics, certification, education, employment, and fundamental knowledge and skills related to the health sciences professions.

**Purpose:** The purpose of the course is to introduce students to the health professions so they can make informed decisions regarding pursuing a career in one of the health disciplines. Experienced leaders in the various health professions will describe the major responsibilities of those employed in the profession, the rewards and challenges, the education required, their role in the total health care team, the employment opportunities, and other unique aspects of their profession.

**Format:** The course will be delivered as an on-line course. The presentation will be audio-PowerPoint with short video clips inserted in various lessons to enhance student understanding of a range of health professions. This course will be provided online or with presentations on a CD-ROM. Quizzes after each presentation will be online using Blackboard.<sup>5</sup> The midterm and final exam will be online. The course is embedded into the health occupations course curriculum for high school students. One college credit will be awarded for successful completion of the course.

portunities. The course Medicine 100: Introduction to the Health Professions, one credit, consists of 16 lectures covering a variety of professions delivered via the Internet (Table 1). Faculty for the course were recruited from UND and surrounding colleges. They were either responsible for teaching in the various professions or actively working health professionals. The presentations are approximately one hour in length and include objectives and a short quiz. Printable slides are also available for the students. The presentations are audio PowerPoint™ productions with a video inserted showing the healthcare worker in the work setting. In locations where Internet connectivity was a problem, the presentations were delivered via a CD-ROM. Student performance evaluation, course evaluation and student tracking were done for all students on the Internet using BlackBoard Learning System (Release 6)™.<sup>5</sup> The course description, purpose, and format are described in Table 2.

**MATERIALS AND METHODS**

The presentations were produced using Macromedia Breeze™,<sup>6</sup> Macromedia FlashMX 2004 Professional™,<sup>7</sup> PowerPoint, and Serious Magic Visual Communicator Professional™.<sup>9</sup> Macromedia Breeze allows the presenter to capture a high quality audio PowerPoint presentation and also insert video clips with ease once the video clips have been compressed using Macromedia FlashMX. When produced, it is ready for application to the Internet or onto a CD-ROM. Serious Magic Visual Communicator allows for the production of studio quality presentations that can be inserted into the Breeze program or can stand alone. The production can be done in an office environment without any props.

The final product was developed so students could either access the entire course directly from the Internet or have the presentations on a CD-ROM, with student performance assessment and course evaluation completed on the Internet. If the CD-ROM option was chosen for viewing the presentations, Sum Total Systems Tool Book Instructor 8.5™ was used to package them.<sup>9</sup>

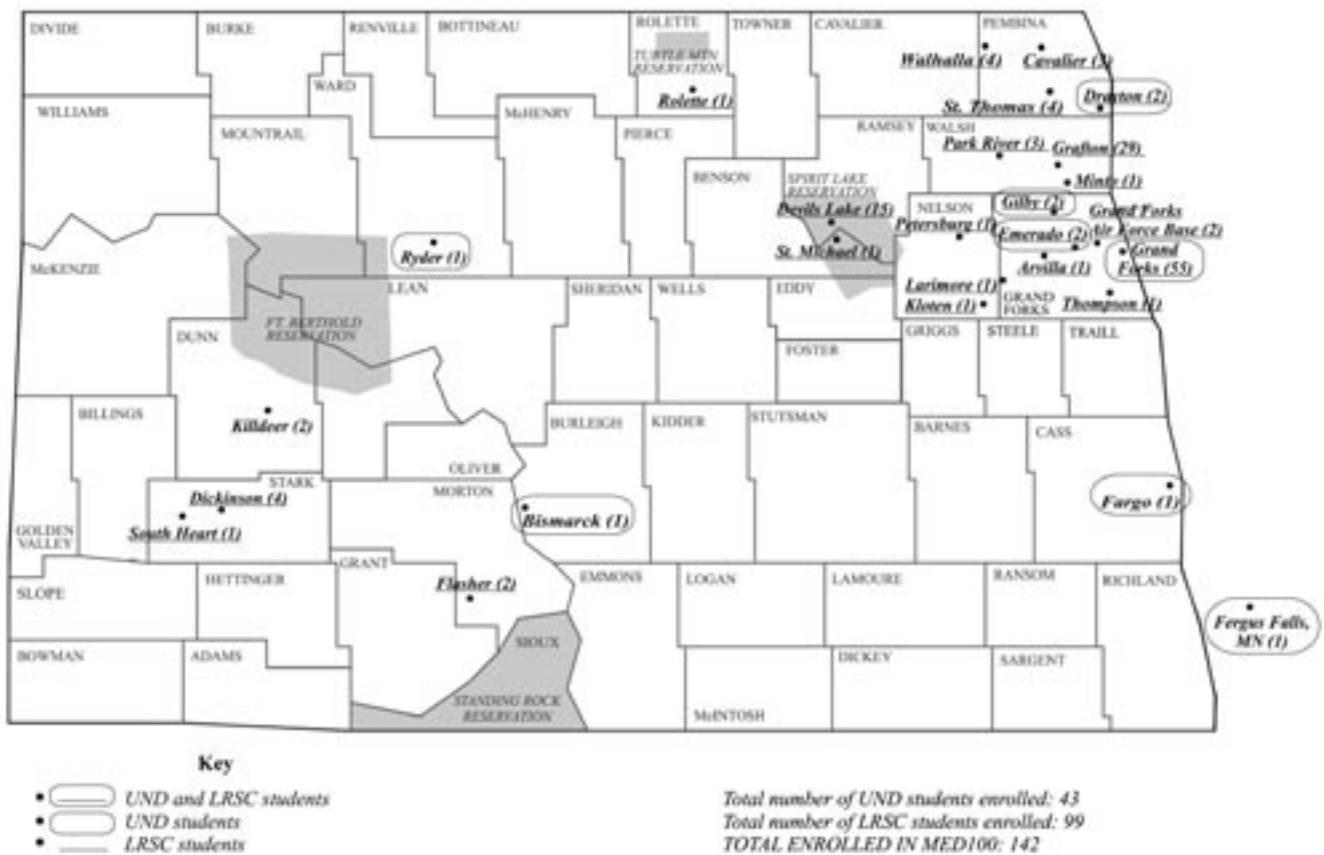
To market the course, the North Dakota Department of Career and Technical Education was asked to participate in the planning and to endorse the course for high schools in North Dakota. A presentation was given to high school career counselors at their annual meet-

ing. In addition, UND partnered with a community college in the center of the state to offer the course as part of their dual credit offerings to high school juniors and seniors. The course developer provided further marketing by visiting several high schools in the state. High school students were given the opportunity to take the course for college or high school credit. Those who chose college credit paid the appropriate college tuition. The Department of Career and Technical Education provided 20 scholarships for college credit and these were awarded on a first come basis. Students taking the course for high school credit were required to pay \$20.

RESULTS

Medicine 100 was offered in the spring semester of 2005 by the UND SMHS and by Lake Region State College (LRSC) to high school students and college freshmen. Figure 1 is a map showing the location and numbers of students enrolled at UND and at LRSC. One-hundred forty-two students enrolled in the course, 43 were UND freshmen, and 99 were high school students. Twenty-seven of the high school sites where students participated were from rural communities with populations less than 10,000. Many of these sites did not have a health occupation curriculum in their high school, so this course provided primary exposure.

Figure 1. Medicine 100: Introduction to the Health Professions online course enrollment for Spring 2005



The course evaluation indicated that students overall were very satisfied. They highly rated the quality of the presentations and were pleased with the content. They rated the classroom management, evaluation process and the presenters' skill in teaching as above average. Specific comments from students regarding the course can be found in Table 3.

**DISCUSSION**

Medicine 100: Introduction to the Health Professions provides a valuable mechanism for high school students and college freshmen in rural and urban settings to learn about opportunities for careers in the health field because they do not have the resources to offer a health occupation course. The offering of the course to high schools in North Dakota serves several purposes:

- It helps build recognition and status of individuals in the community working in the various health occupations.
- It stimulates interest among young people who were previously unaware of opportunities in healthcare.
- It is a cost effective way to recruit young people to the health professions.

Developing the course for online or computer and online delivery allowed students maximum flexibility in participating in the course and made it available at any site, regardless of their Internet connectivity. This is especially important in rural communities with very small high schools that do not have the technical capabilities of the high schools in the larger communities. Providing the option of taking the course for high school and college credit or for high school credit only, and providing scholarships for those seeking college credit, makes the course affordable for all students, regardless of economic status. The development of partnerships between the SMHS, North Dakota Department of Career and Technical Education, and LRSC provided a mechanism to market the course to a wider audience and to gain acceptance in the various rural communities in the state.

**SUMMARY**

Medicine 100: Introduction to the Health Professions course delivered via the Internet provided a unique way to address an ever growing healthcare shortage problem in North Dakota. It provided for inclusion of key stakeholders and

**Table 3.** Student comments about Medicine 100: Introduction to the Health Professions

- I like that each occupation was a separate lecture. It was very well organized and I learned a lot from taking this class, I also like the different ways each lecture was presented.
- The printable slides were great; after listening to the lectures, I had something to refer back to.
- I like how the course covered a wide variety of professions. It let me get a look at a lot of career choices.
- I am a visual and listening learner, so having the lecture there and being able to hear the presentation and see the slides at the same time made the class *easy* to understand and comprehend. What also helped was that the presenters made each lecture and each slide very interesting. I found myself sitting on the edge of my seat because it was *so* interesting.
- This course helped greatly in discovering the many occupations in the medical field. It helped me see which ones I would be interested in. I would recommend this course to anyone who is thinking about a career in the medical field.
- The basic concept of the course was incredible. It was very interesting to be able to explore many different areas of health careers from people who actually have experience in that specific field.
- It taught me how to take an online course and what to expect from future courses.
- I would definitely recommend this course to anyone interested in health and medicine, even if they have already decided on a career; this course is a wonderful way to learn more about other career opportunities.
- I would recommend this class because it really opens your eyes to all of the medical professions to explore. In the beginning I knew that I wanted to be a physician; now I know what steps I need to take to increase my chances of getting into medical school. Also, I am more informed about the various areas from sports medicine, social work, nursing, information resources, etc. I think that anyone who plans to work in the medical field should definitely take this class because it allows students to see how all the professions must work together in order to keep things running smoothly.

gave convenient cost effective access to all communities that wished to participate.

REFERENCES

1. Silberg B. Crisis looms with shortages of health professionals. University of Minnesota TC: Kiosk; 2002. <http://www1.umn.edu/urelate/kiosk/03-04.01text/crisis.html>. Accessed 2005 Jun 9.
2. An opinion research study. April 2002. Peter D. Hart Research Associates for AFT Healthcare. The staffing crisis for health professionals: Perspectives from radiology technologists, respiratory therapists, and certified nursing assistants. American Federation of Teachers, AFL-CIO.
3. US Congress, Office of Technology Assessment, Healthcare in rural America, OTA-H-434 (Washington, DC: US Government Printing Office, September 1990.
4. Salsberg E. Making sense of the system: How states can use health workforce policies to increase access and improve quality of care. September 2003. <http://www.milbank.org/reports/2003salsberg/2003salsberg.html>. Accessed 2005 Jun 9.
5. Blackboard™. Software used: Blackboard Learning System™ (Release 6), 6.2.3 build 6. <http://www.blackboard.com>. Accessed 2005 Jun 9.
6. Macromedia™. Software used: Breeze 4.1. <http://www.macromedia.com>. Accessed 2005 Jun 8.
7. Macromedia™. Software used: Flash MX2004 Professional. <http://www.macromedia.com>. Accessed 2005 Jun 8.
8. PowerPoint 2003™. <http://www.microsoft.com>. Accessed 2005 Jun 8.
9. Serious Magic™. Software used: Visual Communicator Professional. <http://www.seriousmagic.com>. Accessed 2005 Jun 8
10. SumTotal™. Software used: Toolbook Instructor 8.5. <http://www.sumtotalsystems.com>. Accessed 2005 Jun 8.

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