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Alternate Delivery Styles for
Health Training in Rural Settings

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Abstract: Rural hospitals, unlike many other business/industries, lack the resources to **educate/upgrade** health **care** technicians without outside assistance. This paper describes how a university, with an innovative, customized delivery system, was able to provide college level **instruction** at small, rural hospitals with minimal costs. Using this competency-based **program**, all instruction was provided through video, **slides/tapes**, and programmed learning materials. Daily student supervision/assistance was provided by hospital training supervisors, who usually were full-time departmental supervisors with appropriate **licensure**. The educational institution

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provided instructors called Education Specialists, who had appropriate **healthcare licensure**. They provided learning materials on a regular basis, and assessed student progress and program development at each **cooperating rural** hospital. Successes were measured by (a) the number of hospital employees who were upgraded to new skill levels and their job satisfaction; and (b) the number of semester hours generated for the educational institution.

The crisis of health **care** in rural areas like southern Illinois is well documented (Cordes, 1989; Office of Technology Assessment, 1990; Rural Health Task Force, 1990). This paper describes how Southern Illinois University at Carbondale, Illinois (**SIUC**) was able to ameliorate labor shortages in allied health professionals with an innovative, customized delivery system that provided college level instruction at small rural hospitals.

Allied health personnel constitute a majority of the health care **workforce**. They work in all types of care -- primary, acute, tertiary, and chronic -- and in **all** health care settings. The levels of training of allied health personnel are as varied as the care they provide and the settings **in** which they work. These personnel include both highly educated persons and others with only on-the-job training. They work with widely varying degrees of autonomy, dependence on technology, and regulation (Institute of Medicine, 1989). **Between** 1970 and 1986, the total estimated number of allied health **personnel** employed in the U.S. almost doubled, reaching three million (Office of Technology Assessment, 1990).

The Problem

The Rural Health Task Force (1990) reported that the need for knowledgeable, caring health professionals is greater now than in any time in the profession's history because the health care system is suffering from **maldistribution** of personnel and shortages of professionals to **fill** critical positions. Barring major economic or health care financing **contractions**, the growth in the number of jobs for allied **health** workers will substantially exceed the nation's average **rate** of growth for **all** jobs (Institute of Medicine, 1989). Currently, on the demand side, the country is demanding more professionals to provide increasingly technical, complex, and cost-effective patient care. On the supply side, fewer people view **health** care professions as attractive career alternatives. Unless educators, in league with employers and professional associations, are successful at fostering an interest in allied health careers among qualified prospective students, both the educational **programs** and the allied health work force will be weakened.

Traditionally, we have depended upon competent, young, white, middle-class females to **fill** these positions. The allied health labor market has been **characterized** by a predominantly female **workforce**, technical competence, highly regulated professions and work environments, and a rapidly changing work place. **Currently**, it is necessary to seek potential students from less traditional applicant pools, such as individuals **classified** as minorities, as older students, as those seeking career changes, as those needing upgrading and as those with handicapping conditions. Unless we do so, an even greater shortage of **personnel** is predicted in **all** allied health practice areas in the future (Institute of Medicine, 1989; Office of Technology Assessment, 1990).

Fifty-seven rural counties in Illinois are designated as medically underserved or

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manpower shortage areas (Rural Health Task Force, 1990). Traditionally, **SIUC** serves the southern-most 27 rural counties in Illinois. Sixteen of those 27 counties are considered to be a portion of the Mississippi Delta, which has received special attention from the federal government for education and economic development. The 25 hospitals serving these 27 counties range from 40 to 185 beds and represent 18% of the 146 acute, short-term general hospitals outside of Cook County. Poverty rates exceed the *Illinois* average in 24 of the 27 counties. The average per capita income (\$12,744) in the region for 1988 is only 72.5% of the *Illinois average* (\$17,586). Throughout the 1980's, the income gap increased. Unemployment rates have consistently been twice the national **rate** throughout the 1980's (O'Neill, Isberner, Chezem, & Saken, 1991).

Rural communities have **difficulty** recruiting and retaining **health** care personnel. Urban-trained health care technologists rarely locate in rural settings, and rural residents, who leave their homes to train in urban areas, rarely return. Another problem for **health** trained personnel is staying current in their profession. Often only one full-time, **certified** technician works in a particular specialty in a **rural** hospital, which makes educational programs offered outside the hospital **difficult** to attend because (a) backup coverage is not available, (b) travel distances are problematic, and (c) costs are too high. Thus, **deterioration** of skills in performing specialized procedures, tests, and nonroutine treatments is possible, as is burnout. Rural hospitals, unlike many other business/industries, lack the resources to educate and upgrade health care technicians without outside assistance. They do not develop major educational programs for each department because so few individuals are employed.

Unfortunately, most institutions of higher education are too distant in miles or lack appropriate programs to provide easy access to rural, nontraditional students.

By developing a training program that recruits rural students from the region and trains them at their work site (hospital), SIUC has devised a training model that can be used **in other rural areas to help alleviate staffing shortages**. Furthermore, correspondence courses and on-site delivery of courses are being used adequately to update technical **skills** and knowledge.

Early SIUC Efforts

Early efforts in the 1970's at **SIUC** to address rural health **staffing** problems included development of programs aimed at (a) producing primary care physicians for rural America; (b) developing an innovative 1+1, self-paced, programmed learning associate degree nursing **program** with four **area** community colleges; and (c) developing the Rural **Allied Health Manpower Program (RAHMP)**. **RAHMP** was funded by a grant from the Department of Health, Education, and Welfare (**HEW**) to train **allied** health personnel (**Lugenbeel, 1980**).

The counties of southern Illinois needed individuals to work in radiology, medical laboratory, and respiratory technology (respiratory therapist or **Certified Respiratory Therapy Technician, CRTT-one year**). **SIUC** solicited support from area community colleges and two health consortia serving the area and began to develop a training program which could be delivered to persons living and working in their rural communities. This program produced **multicompetent** technicians who had **received** one year of training in two of the three shortage areas addressed by the HEW grant. Allied health became increasingly specialized during the 1960's and 70's due to rapid advancement in technologies. According to the

National Commission on Allied Health Education, (1980), early efforts in multicompetency training were perceived as means to provide **generalists** to meet the needs of rural hospital manpower.

All of **SIUC's RAHMP** grant training, both clinical and didactic, was completed at the rural hospital. The **RAHMP** project had three components: hospital training supervisors, educational specialists, and students.

1. Hospital training supervisors provided daily supervision and assistance. Most were full-time, licensed departmental supervisors who volunteered to work with students because of the hospital's **need** for trained/upgraded personnel. Generally, their commitment or lack of commitment was the difference between a highly successful collaborative team output and a **mediocre** output. All supervisors received adjunct faculty status, and although unpaid, did receive a six hour tuition waiver, library and recreational center usage, and membership in **SIUC's** credit union.

2. Educational socialists were instructors, with appropriate health care **licensure**, who were provided by SIUC. They provided videos, slides/tapes, programmed learning materials, and tests to the students on a regular basis. They also assessed the program's and **students'** progress at each of the cooperating rural hospitals. Besides meeting faculty **requirements** for the University, the educational specialists had to be willing to **travel** as much as 175 miles per day, 4 days per week, and to cover 6-8 hospitals.

3. Students were people who were committed to the rural community and who wanted training or **upgrading**. Some were health care **personnel** already in the hospital setting who wanted to upgrade their skills but previously had little opportunity for such

training. Others were people who had been unable to attend school because of job responsibilities. After four years, the typical **RAHMP** student was female, age 30, married or divorced with one or more children, who had attended 1.5 years of college, had been an area resident for 21 years, with local family ties, and was employed in one of the area's hospitals. Recruiting students was not a problem. There were three prospective students for every **available** position at the training sites.

The basic steps in the **RAHMP** delivery system were:

1. Educational specialists **delivered** educational materials to the work sites and discussed the materials and educational objectives with the clinical **supervisor**.
2. The student viewed the audiovisual materials, read assignments, and completed workbook activities on the unit. The student then took the self check test.
3. The student observed the hospital supervisor performing the **specific** tasks covered by the educational unit.
4. The student took written, oral, and practical examinations for that unit while being monitored by both the clinical supervisor and the education specialist. After these materials were **mastered**, the student was ready to start the next unit.

Successes of the **RAHMP** Project were measured by the number of **employees** who were upgraded to new skill levels, their job satisfaction, the number of semester hours generated for the educational institution, and the **future** spinoffs of **RAHMP**, such as correspondence courses, upgrading courses in allied health **programs**, and community college linkages for science and **support** courses. According to 1 and 5 year **followups** of the original 30 **RAHMP** trainees, 28 were working in full-time hospital positions in the specialty

areas for which they **were** trained. The remaining two trainees were working part-time by their choice. All **trainees** received salary increases, 23 received associates degrees, and two obtained bachelor's degrees. The majority of trainees obtained positions within the hospital in which they were trained. **The cooperating rural hospitals** benefitted in reduced recruitment outlays and in reduced interviewing and orientation costs. The service revenue generated by the trainee **more** than compensated the hospitals for the use of their equipment, space, and staff time.

The Future

Television has proved to be the key for distant learning and continuing education. It can save time and travel cost for both students and faculty, as well as extend the geographic service area of the institution of higher education.

Interactive two-way television (ITV), also called distance learning or extended classroom, is currently being used for instruction to **link** professors at college campuses to remote sites. Moore and McLaughlin (1992) initiated **ITV** for St. Cloud State University, Minnesota, in December 1987 and **predict** it will **become** a factor **in** education. At St. Cloud an on-campus classroom, located in a television studio, is linked by video or audio to one to three remote sites. Each classroom is equipped with monitors placed in the front and rear of the room so the instructor and participants can maintain continuous visual contact. In addition to a camera **fixed** on the instructor, there are two other cameras; one is **fixed** on the class while the other monitors a stationary surface used for graphics. Each of the three cameras is wired to a central switching box that the instructor may use much like a television producer does. Each **locale** is equipped with a fax machine to send and receive class

assignments and other materials. Microphones are available on classroom tables for **student-teacher** interactions.

Interactive television also has some limitations. These include: (a) the expense, (b) the complexity of the television production role for the instructor, (c) the **lack** of spontaneous instruction, (d) the noise and time-consuming faxing, (e) the instructor not getting to know the students at the remote site, and (f) the lack of **interaction** from **all** students.

However, as one moves from rural to frontier areas, this type of video education becomes even more practical. One problem with allied **health** and nursing education is in finding appropriate licensed **and** academic **credentialed** faculty to teach in more remote areas. The community colleges of some frontier states are solving this problem through cooperation and available technology. For example, the specialized nursing faculty of **Laramie** County Community College (**LCCC**), located in **Cheyenne**, Wyoming, that state's population center, provides lectures for other community colleges' associate degree nursing programs. Eastern Wyoming College (**EWC**) is about 100 *miles* from the LCCC and has an associate degree nursing program on the main campus as well as at an attendance center 125 *miles* north of Ewe.

LCCC'S first TV system was Audiographic and used **Op-Tel** software, a **computer-**driven two-phone line program. The system was slow and did not provide adequate picture quality for rapid hand or arm movement or detailed drawings. The drawings were supplemented by sending them on a 3.5 inch computer disc to the distance site in advance and using an additional TV monitor for display. Interestingly, a religious-based hospital system helped purchase both the hardware and software for EWC in order to provide nurses

for their hospitals (**Engbretson**, 1992). Across the state line in northeastern Colorado, Ft. Morgan **Community** College is using the **Op-Tel** system to deliver **general** education courses from the main campus to attendance centers **almost** 100 miles away (Henry, 1992).

After five years, LCCC and EWC are moving to a compressed video, similar to the model in St. Cloud, but without the fax. The system also is being used by other **cooperating** Wyoming community colleges to offer advanced math and science courses. The use of telephone lines with the specialized equipment provides additional opportunity for education in distant areas not previously served by systems of higher education.

One need not get lost in all of the technology; the primary purpose of all training **programs** is to educate individuals for the work force. This can be done readily through programmed learning packets developed by faculty specialists. These self-paced learning programs can be in a **paper/pencil** format or a computerized format. SIUC currently offers the **traditional Independent Learning Programs** in such courses as **Medical** Terminology and AIDS education. **SIUC's radiologic** technology and respiratory therapy faculty members have produced continuing education programs on Quality Assurance for hospital departments of **radiography** and **respiratory** care in a non-traditional format. Hospital staff complete the required readings and programmed learning activities. Then the faculty meets with the staff for a few evenings to answer questions, supervise laboratory experiments on hospital equipment, provide consultation to the department, and give the **final** examination.

Conclusions

Traditional methods of recruiting and educating allied health technicians **are** not supplying an adequate number of technicians to meet rural health needs or to allow adequate

upgrading of skills. The proposals offered here, in which the educational institution brings the programs to the **rural** hospitals, are functional opportunities to train and upgrade current and future health care personnel. Although some proposals include **rather** expensive, complex, interactive, two-way television, the other methods explained in this paper can be quite effective and are less costly because they require equipment available in most educational and health care institutions. Furthermore, our experiences show that the high motivation of health care personnel to **upgrade** and **learn** new skills and knowledge makes conventional correspondence courses extremely **well** received and effective. Our **RAHMP** training experiences show that a **rural** hospital can provide educational experiences to an entry level employee, allowing that employee to be upgraded into a position with a higher salary and more responsibility. The current crisis in rural **health** care training is likely to become even worse **unless** educational institutions make adjustments to deliver education directly to the **rural** health care facilities.

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