A Study In The Development Of A Multidisciplanary Clinical And Rehabilitative Outpatient Clinic At A Regional University: The Implications For The University And The Community

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Abstract

The growing trend in modern health care is to improve clinical outcomes utilizing multidisciplinary allied health teams for maximum patient benefit. Consequently, colleges and universities are adopting this concept in their curricula and developing multidisciplinary clinics to support this trend. While, regional universities enter into business ventures for various reasons, universities that offer multiple health science curricula have the capability to develop outpatient clinical and rehabilitative services that meet the needs of their communities and support the multidisciplinary approach to patient care. These clinics are seen as a vital and viable community resource by most people. It is important for a regional university to explore the feasibility of such clinics to maintain current best practices in medical education and fulfill their mission as a community resource. The review of the literature revealed that there is a limited body of knowledge about the development of multidisciplinary health care education models. It also demonstrated that Canadian universities and allied health practitioners have more readily implemented multidisciplinary allied health educational models and practices than the United States. The literature also revealed that clinical outcomes for patients are significantly improved when using a multidisciplinary approach to delivering health care. Using a case study approach, a single research question guided this practicum: Should a regional university in East Tennessee develop a multidisciplinary allied health clinic to better serve the community, allied health students, and faculty? The results based upon the findings of the literature review, formative and summative committee input, a business plan, and financial pro forma statement concluded that developing a multidisciplinary allied health clinic at East Tennessee State University (ETSU) was the right course of action to pursue. The implications of the findings were that an ETSU based multidisciplinary allied health clinic could become the future cornerstone for both patient care and allied health education. If students are to be well prepared to function in rapidly changing healthcare delivery models, it is critical that they be provided every opportunity to experience. This practicum will heighten awareness of multidisciplinary practice in the allied health professions. It is recommended that other college or university based allied health programs should pursue curriculum that promotes interdisciplinary collaboration. Academic institutes that invest in multidisciplinary education are investing in an improvement in clinical outcomes and an expansion of the body of knowledge that is a logical outcome of multidisciplinary research. This is a substantial return on investment for all stakeholders.

CHAPTER 1:INTRODUCTION

BACKGROUND

Regional universities enter into business ventures for various reasons. Universities that offer multiple health science curricula have the capability to develop outpatient clinical and rehabilitative services that meet the needs of their communities. These clinics are seen as a vital and viable community resource by most people. They are usually manned by existing faculty members as part of their existing workloads. Clinics of this nature provide a means for faculty to maintain their clinical skills while still working full-time in academia. In addition, the clinics are also viewed as potential recruitment tools for attracting new faculty. This study explored the service, education, research, and revenue potential that the formation of a multidisciplinary outpatient clinic would provide. These clinics can provide the following opportunities:

1. Provide a centralized site to provide clinical

instruction and experiential learning for allied health students;

2. Provide opportunity for multidisciplinary collaborative research;
3. Provide additional funding and financial growth for the college; and
4. Provide health care services for targeted populations within the community.

NATURE OF THE PROBLEM

It is often a daunting task for universities or colleges to develop outpatient health care clinics for numerous reasons. Barriers to entry exist both internally and externally. The clinics are often multidisciplinary in nature and require a unique blending of preventative, diagnostic, and rehabilitative medicine. Charge masters (detailed billing lists with procedural codes and prices) are very intricate in detail, as well as broad spectrum in design to facilitate billing for the services provided patients by professionals from multiple allied health disciplines. Consequently, this intricacy increases the likelihood for billing errors, correct coding edits, missed billable opportunities, and insurance denials. Clinicians tend to be well in tune with the nuisances of their profession, yet have limited understanding of the practice of other disciplines. Clinicians who are currently practicing within the college in single disciplinary clinics may be resistant to changing their practice environment to a multidisciplinary clinic. Finally, existing practitioners in the private sector may oppose the formation of the clinic because it could be interpreted as a direct competitor for the same patient pool.

PURPOSE OF THE STUDY

The goal of this study was to determine how university or college based outpatient clinics strengthen the service, educational, research, and financial components of the sponsoring institutions. While the benefit to the community at large may be apparent, the benefit to the institution may be less apparent. Communities that are served by these clinics benefit by having access to health care services that may have otherwise been unattainable. The clinics can provide affordable healthcare to populations that may be of low socioeconomic standing. These clinics, by and large, can afford to charge less for services because they are predominantly staffed by students gaining clinical experiences. It is imperative that colleges, universities, as well as the communities that they serve realize the positive impact of academically sponsored outpatient health clinics.

The purpose of this study was to explore the feasibility of a regional university in East Tennessee developing an outpatient multidisciplinary campus clinic. It is important to understand if multidisciplinary clinics can provide superior learning environments for students when compared with traditional single discipline clinics. Upon completion of this study a written summation of the findings complete a financial pro forma and clinical model will be presented to the Dean of the College of Clinical and Rehabilitative Health Sciences at East Tennessee State University (ETSU).

SIGNIFICANCE TO EAST TENNESSEE STATE UNIVERSITY

In addition to the College of Clinical and Rehabilitative Health Sciences, ETSU has a College of Medicine, College of Pharmacy, and a recently accredited College of Public Health. The opportunities a multidisciplinary allied health clinic could provide are numerous. It could expand collaborative research efforts within ETSU and enhance grant funding opportunities for research. The ETSU is viewed as the community leader in educating medical professionals and a multidisciplinary allied health clinic would only serve to enhance the school's excellent reputation. Furthermore, ETSU would be serving the community of need by providing multiple health care services centrally located that are competitively priced.

RESEARCH QUESTION

Should a regional university in East Tennessee develop a multidisciplinary allied health clinic to better serve the community, allied health students, and faculty? The specific research question for this study was: “Would it be financially responsible and address a community of need for the region if East Tennessee State University proceeded with the development of a multidisciplinary allied health care clinic?” The study results and research question answers will be presented to the Dean and executive committee in the form of a comprehensive literature review, proposed clinical model, and accompanying financial pro forma statement.

CHAPTER 2: LITERATURE REVIEW

MULTIDISCIPLINARY APPROACH TO HEALTH CARE YIELDS BETTER CLINICAL OUTCOMES

Health care workers that work as a team to manage patient

illness quite often have better clinical outcomes than those patients seeing different disciplines that are not in communication with each other. According to Robert Welchs of The Canadian Medical Association a study was conducted using a meta analysis of 29 clinical trials to determine if patients with cardiac failure had better clinical outcomes when treated using a multidisciplinary care approach (Ducharme, Doyon, White, Rouleau & Brophy, 2005). Although multidisciplinary congestive heart failure clinics in the United States appear to be effective in reducing the number of hospital readmissions, it is unclear whether the same benefit is seen in countries such as Canada, where access to both general and specialized medical care is free and unrestricted. The study sought to determine the impact of care at a multidisciplinary specialized outpatient congestive heart failure clinic compared with standard care. Furthermore, the findings of this important study demonstrated that care at a specialized multidisciplinary clinic for patients with congestive heart failure can lead to significant reductions in patient morbidity, as measured by fewer hospital admissions, shorter hospital stays and improved quality of life. When the results are integrated with those from other, similar trials, multidisciplinary disease management strategies for congestive heart failure are associated with clinically worthwhile improvements in survival (Ducharme et al., 2005).

A study conducted on chronic back patients through the department of neurology in Nuremberg, Germany at the University of Erlangen-Nuremberg also showed the benefit of a multidisciplinary approach to health care delivery (Lang, Liebig, Kastner, Neundorfer, & Heuschmann, 2003). The study compared the outcome of a multidisciplinary rehabilitation program that was organized by cooperation of local health care providers in the community with that of the usual care by independent physicians for patients with chronic low back pain.

The results of the study are as follows: complete data sets were obtained from 157 patients in the usual care group (documented by 35 independent physicians) and 51 patients in the MRP group. Patients of the MRP group improved in the physical and mental health domains of the SF-36 more than patients treated by usual care ($p<.05$). Furthermore, days off work were more ($p<.05$) reduced by the MRP (16+/-35 days) than by usual care (-2+/-39 days). Finally, overall appraisal of successful outcome was better ($p<.01$) after MRP (54% of patients) as compared with usual care 24% of patients (Lang et al., 2003, p.270).

Asthma is a debilitating physical ailment, yet the psychosocial impact the disease carries often goes unaddressed. In a recent study conducted in New Jersey and reported by Bates (2001) demonstrated that two-thirds of adult asthma patients were found to have a corresponding psychiatric diagnosis also. Additionally, Patrick (2001) reported a Dallas, Texas based study where forty percent of patients in an asthma clinic also presented with mood disorders predominately entailing depression and adjustment disorder. Both studies suggested that a multidisciplinary approach to asthma treatment would be most beneficial for these populations.

Keller (2006) reported that researchers at the University of Wisconsin have discovered that patients with metabolic syndrome are benefitting from a team clinic approach to treatment. The clinical team members include: endocrinologist, psychologist, dietitian, diabetes educator, pharmacist, physical therapist, and exercise physiologist. Metabolic syndrome is a unique disorder that increases the rick factors for heart disease, obesity, and diabetes. Keller notes:

Data on approximately 480 patients revealed that after 6 months of treatment, their collective BMI dropped by 4.4%, their waist size decreased by 4.3%, their triglyceride levels fell by 13.1 %, and their HDL (healthy) cholesterol level rose by 6.2%. As a result, their 10-year risk of developing cardiovascular disease was reduced by 19.5% (p.20).

A 2005 study conducted by researchers at the University of Michigan suggests a strong inference that adult patients diagnosed with asthma were at risk for obstructive sleep apnea. The study concluded that, “Patients with a sleep disorder score one standard deviation above the mean were 2.4 times as likely to have severe asthma as those with an average score. This association was unaffected by adjustments for BMI” (Asthma Worsened by Sleep Disorders, 2005, p. 2). This discovery of the linkage between the two pathologies would not have been possible if the study did not benefit from a multidisciplinary research approach.

A researcher at the University of Sydney using an analysis of the current literature involving hip fractures concluded that patients receiving post hip fracture care from a multidisciplinary team had better clinical outcomes (Camerson, 2005). The literature revealed that there are

several predictors of recovery after hip surgery that includes: age of the patient, co-morbidities, lack of cognitive impairment, and overall physical functioning prior to the fracture. Camerson (2005) noted that the one event outside of patient health that was the biggest predictor of patient recovery from a hip fracture was the type of rehabilitation that the patient received. Rehabilitation that was provided in a multidisciplinary setting provided the best clinical outcomes when compared with other rehabilitation (Cameron, 2005).

ACADEMIC INSTITUTES ARE INVESTING IN MULTIDISCIPLINARY EDUCATION

The University of Alberta (UA) is breaking new ground on a state of the art facility that will cost roughly 900 million to complete (Lett, 2008). The huge financial investment will be designed for instructing students in a new model of education, where students from the disciplines of medicine, nursing, pharmacy, dentistry, and agriculture will train and be educated together. According to Lett (2008), the UA feels that in the future physicians will be practicing in multidisciplinary environments where they will rely more heavily on the allied health disciplines in their everyday practices. Furthermore, UA believes this multidisciplinary model supports this philosophical shift in education and will coincide with what will soon be happening in health care practice.

Lett (2008) states that the benefit of the multidisciplinary teaching model extends well beyond innovative teaching methods. Students were allowed to see how other allied health practitioners interacted with each other which facilitated a cumulative benefit for the patient. It seemed as though each practitioner gained a new respect for the discipline of their copractitioners by working collaboratively for the betterment of the patient. The multidisciplinary model fostered fellowship and professional respect among the practitioners. The students were able to see first hand how beneficial a team approach to patient care improved clinical outcomes. This model will foster student peer learning in mock and actual clinical scenarios (Lett, 2008).

The University of Alabama at Birmingham (UAB)has opened a unique multidisciplinary low vision rehabilitation eye clinic (UAB low vision center combines key disciplines, 2002). The UAB Clinic is believed to be the first of its kind in providing this advanced level of eye care for patients. The premise behind the clinic is that patients are dealing with more than just an eye problem. These patients may have hand eye coordination, require corrective vision enabling equipment, and could have psychosocial adjustment disorders if vision is severely impaired or lost. The UAB Clinic combines the following disciplines: ophthalmology, optometry, occupation therapy, and psychology to better address the needs of their patients. Although UABadmits that providing a multidisciplinary approach was more costly on the front end, they believe that improved clinical outcomes and coordinated research opportunities will be well worth the initial investment (UAB Low Vision Center Combines Key Disciplines, 2002).

INTERDISCIPLINARY HEALTH CLINICS ASSIST IN MEETING THE NEEDS OF SPECIAL POPULATIONS

According to Harrow, Lempp, & McDermott, (1994) the Communicable Disease Unit (CDU)at St. George Hospital located in Southwest London has fostered a unique approach to providing quality multidisciplinary care. The CDU has developed a downtown AIDS clinic whose primary purpose is treatment and prevention of the deadly disease to the uninsured. This article points out that the CDU has evolved from its inception from a single disciplinary approach involving only nursing to a multidisciplinary status involving: counselors, nurses, dieticians, pharmacists, psychiatrists and social workers. The reason for the change was because the single disciplinary approach became unsatisfactory for both patients and staff (Harrow, Lempp, & McDermott, 1994).

The CDUdeveloped a quality circle for staff to resolve problems and foster new ideas to enhance the Clinics offerings (Harrow, Lempp, & McDermott, 1994). This resulted in an increased knowledge and skill set for all of the staff involved. The CDU submitted questionnaires weekly to the patients and converted their feedback in to practice. According to the authors, the quality circle and patient feedback forced the clinical members to listen to the patients and each other for the betterment of the Clinic and to help facilitate the community of need. The interaction between clinical members led to the forming of a journal club that has resulted in several interdisciplinary publications (Harrow et al., 1994).

The School of Allied Health Sciences at the Medical College of Georgia instituted a study to increase allied health student participation in interdisciplinary health care services in rural areas of the state during fiscal years 2001-2003 (Guion, Mishoe, Taft, & Campbell., 2006). The State of Georgia

during the time was not only experiencing a decrease in student enrollment of allied health programs, but also an increase in the number of graduates seeking employment away from the already underserved rural areas (Guion et al., 2006). There were 98 students, who participated in the three year study. At the end of the study the students were surveyed and 76% responded positively to the possibility of working in rural areas when they graduated. This project is still in the early stages, yet it appears to be changing student perceptions and attitudes about rural health care while simultaneously assisting in addressing the health care needs of the rural Georgia population (Guion et al., 2006).

Nursing students at the University of British Columbia (UBC)help provide care to the indigent population in a multidisciplinary clinic in the city (Fletcher, 2001). The UBC Clinic is a participant and clinical site member of the UBC Community Health Initiative by University Students (CHIUS). The CHIUS students regardless of discipline must perform community service for an at risk population as part of their clinical training requirements. According to this study, every nursing student must work 2 days per week in the clinic alternating weekends and evenings as part of their clinical training. The students get to see first hand how multiple disciplines address patient care issues using the team approach model (Fletcher, 2001).

Fletcher (2001) stated that the UBC Clinic provided opportunities for patient teaching from the students on a broad range of topics ranging from birth control to oral hygiene. The author notes that, students on the weekend rotation get to work in the female clinic, which provides a unique opportunity to take part in the development of prenatal care for uninsured pregnant females. Fletcher states that the UBC Clinic provides a much needed service to a population that otherwise would not receive health care. In addition, the clinic allows students unique training opportunities and learning experiences that traditional hospital rotations are unlikely to provide (Fletcher, 2006).

Stock, Reece, and Cesario (2004) described the development of a multidisciplinary clinic providing care for the elderly in Eugene, Oregon. The authors related that the multidisciplinary approach included physicians, social workers, nurses, pharmacists, and dietitians. When needed, this study noted that chaplains, physical therapists, behavioral health professionals, and educators were added to the team. The clinic opened in 2000, was organized to provide “evidenced-based primary care that supports the interactions between informed active patients and a prepared, proactive practice team” (Stock, Reece, & Cesario, 2004, p. 2129). At the end of 2003, the clinic had grown to 1605 patients. The authors stated that lessons learned from this start-up venture included: developing a new clinic was easier than changing an existing clinic; an effective model should be developed before the clinic begins, and a focus on multidisciplinary care required a focus on developing and maintaining team behaviors. They also noted that to increase the chances of success for similar ventures, a parent organization or external funding should be sought to absorb start-up costs (Stock, Reece, & Cesario, 2004).

A bill authored by Tennessee Senator William Frist “The Closing the Health Care Gap Act of 2004” sought to achieve the following objectives: the collection of better data on health care quality, expand access to quality health care for all citizens, strengthen leadership at the federal level, strengthen research on health disparities, and increase diversity in the health professions (AHEC, 2005). The State of Kansas with the aid of federal funding had already established Health Education Training Centers (HETC) under the direction of the University of Kansas. According to AHEC (2005), HETC had the following objectives: (a) to facilitate interdisciplinary clinical training for health profession students from nursing, medicine, and allied health at targeted underserved communities, (b) to deliver culturally appropriate health care information to underprivileged populations at targeted underserved communities, to conduct continuing education activities for community health workers and health professionals serving vulnerable urban and rural populations, and (c) to recruit and mentor high school students from disadvantaged populations to pursue health professions. The additional funding provided by Senator Frist's bill helped HETC to come that much closer to reaching their objectives (AHEC, 2005).

The World Health Organization (1987) defined a community health worker as a member of a particular community who is selected by the community to receive health training and who is accountable to the community for health related education and services. Breedlove, Smith, & Lamping (2006), noted that the results of the additional funding for HETC were the established of a Community Health Worker Program. According to Breedlove et al. (2006), the HETC funding allowed a diabetic clinic to be established with bilingual students and health care workers. TheHETC Clinic was designed to provide assistance to the underserved Latino

population, but accepted anyone of low socioeconomic standing. Nursing, physicians, pharmacists, and allied health students were all involved in patient care. The program was designed to educate patients and students on the value of interdisciplinary health care services (Breedlove, Smith, & Lamping, 2006).

MULTIDISCIPLINARY CLINICS FOSTER RESEARCH, GRANT FUNDING, AND MENTORSHIP

Domino, Smith, & Johnson (2007) pointed out the extramural funding initiatives for interdisciplinary research. Domino et al (2007) wrote:

A key component of the National Institutes of Health (NIH) Roadmap for Medical Research is the development of interdisciplinary research teams. How best to teach and foster interdisciplinary research skills has not been determined. An effort at promoting interdisciplinary research was initiated by the Office of Research on Women's Health (ORWH) at NIH in 1999. The following year, 12 academic centers were funded to support 56 scholar positions for 2-5 years under Building Interdisciplinary Research Careers in Women's Health (BIRCWH) (p. 258).

One of the twelve funded BIRCWH programs was at the University of Michigan (Domino et al., 2007). The program reported that junior investigators were not only mentored by the principle investigator, but also by a three person mentoring team. The results of this study demonstrated that despite some initial difficulties with scheduling and time management the test program was nonetheless a success. According to Domino et al. (2007), the first cohort consisted of ten students of which seven of the students achieved independent research funding.

Douglas (2005) findings at the University of Vermont using the structure and funding of the federal government's Maternal and Child Health Bureau has developed an interdisciplinary approach to improving the health outcomes of children with neurodevelopmental disabilities. According to Douglas (2005), this model has proven especially effective in rural healthcare settings such as those found in Vermont. The author states that members of Vermont's Leadership Education in Neurodevelopmental Disabilities (LEND) programs include faculty from audiology, health administration, nutrition, nursing, occupational therapy, pediatrics, pediatric dentistry, physical therapy, psychology, social work, and speech-language pathology. Douglas further notes that:"This interdisciplinary leadership emphasizes family-centered care, collaboration among disciplines, and cultural competence" (p.32). This treatment model with a plethora of practitioners from multiple disciplines with the pairing of a federally funded program being administrated through a state university resulted in an innovative approach to health care delivery.

At Loma Linda University fourth year medical students and orthopedic residents participate in a multidisciplinary approach to learning about rehabilitative medicine (Anderson & Gutierrez, 2001). According to Anderson and Guitierrez (2001), this clinical exposure allows medical students to experience hands-on treatment modalities of physical therapy, occupational therapy, and speech pathology. The authors concluded that this approach enhanced not only their awareness of rehabilitative practitioner techniques but also demonstrates the benefit of collaborative approaches to patient care that may improve clinical outcomes. The benefit of this educational endeavor is for future physicians to see the improvement rehabilitative medicine can make in patients' quality of life. Consequently, once these students become practicing physicians, they will understand the benefits of a multidisciplinary approach to rehabilitative care for their patients (Anderson & Gutierrez, 2001).

CHAPTER 3: METHODOLOGY AND PROCEDURES

METHODOLOGY

Using a case study approach, a single research question guided this study. That question was: "Should a regional university in East Tennessee develop a multidisciplinary allied health clinic to better serve the community, allied health students, and faculty?" While researchers differ in their definition of a case study, in general terms, a case study may be described as an investigation of a phenomenon in a single setting (Bailey, 1997; Ragin, 1999). Babbie (2005) described case studies as focusing "on one or a few instances" of a phenomenon (p. 306). Babbie wrote that limiting focus to an exclusive instance of a phenomenon is paramount to the understanding of the case study methodology. While Ragin (1999) pointed out that multiple instances of the same phenomenon could be called a case study, he stated that researchers may select a specific case from many because the case may provide insight into "conventional arrangements and practices" (p. 1137). This practicum's methodology employed Ragin's description of

case study inquiry and sought to provide insight into the conventional arrangement and practice of establishing a multidisciplinary allied health clinic by ETSU.

PROCEDURES

Data from four procedures facilitated this study's findings and conclusions. First, a literature review of topics related to various allied health disciplines' outpatient clinics was conducted. The search was limited to the last 10 years of available information. The search was conducted at ETSUs Charles C. Sherrod Library and the following databases provided access to the literature: InfoTrac OneFile, PUBMED, and the Cumulative Index to Nursing and Allied Health Collection (CINAHL). The search was limited to English language articles with full text and because the establishment of multidisciplinary allied health clinics is newsworthy included a search of both peer reviewed journals and non-peer reviewed trade publications. Keywords used during the literature search included: “allied health clinics”, “multidisciplinary clinics”, “multidisciplinary allied health clinics”, and “rehabilitation clinics” excluding “alcohol” and “substance abuse”.

Second, a formative committee of faculty members from the ETSU College of Clinical and Rehabilitative Health Sciences was selected. These faculty members were representative of the disciplines proposed for inclusion in the multidisciplinary allied health clinic. Information from the members of this committee provided valuable insight into the ETSU Clinic's perceived role in faculty's teaching, scholarship, and community service. Their input provided qualitative data that augmented data from the financial analysis.

Third, a summative committee was selected. Summative committee members included Department Chairs and the Assistant Dean of the College of Clinical and Rehabilitative Health Sciences at ETSU. The purpose of this committee was to review the practicum's findings and supporting data prior to presentation to the Dean of the College of Clinical and Rehabilitative Health Sciences.

Fourth, a financial feasibility study was used to determine the viability of the proposed clinic. The model depicted in Figure 1 guided the development of the clinic and the feasibility study.

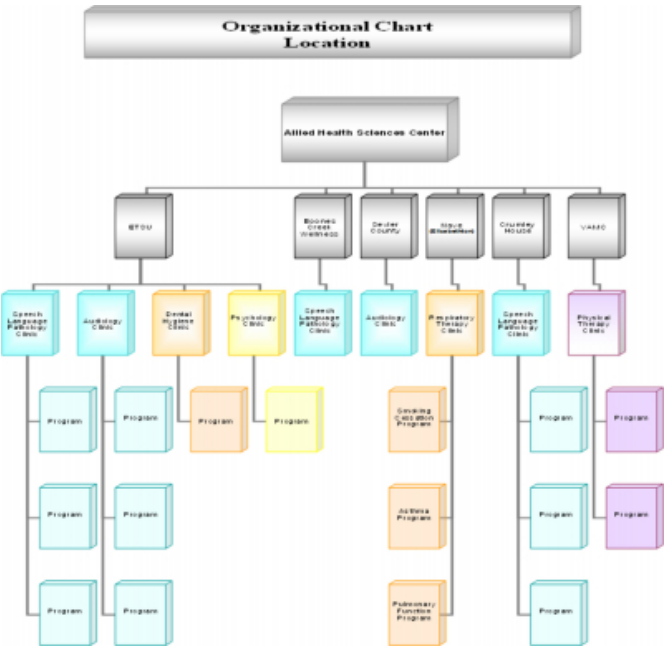
Figure 1

Figure 1: University-based Multidisciplinary Clinic Development Model

In addition, the following organizational chart (Figure 2) was also developed. The proposed organizational chart was of a functional nature and provided for future clinic expansion.

Figure 2

Figure 2: Functional Organizational Chart with Potential for Expanded Service Offerings.



ASSUMPTIONS

This study was conducted under the following assumptions:

1. The literature selected from full text electronic sources is representative of the body of knowledge regarding outpatient allied health clinics in the

United States.

2. The members of the summative committee are representative of faculty members in their discipline and have considerable knowledge of single practice clinics as well as multidisciplinary clinics.

3. The members of the summative committee will have an understanding of teaching, scholarship, service, and finance. It is further assumed that these committee members understand the mission of the ETSU and the role clinical education plays in pursuing that mission.

LIMITATIONS

This study was limited to the study of a single proposed multidisciplinary allied health clinic in Johnson City, Tennessee. The results of this study may not be transferable to clinics at other locations. Additionally this study focuses on a multidisciplinary clinic and results may not be transferable to single discipline clinics.

The financial pro forma for this study (Table 1) was based upon certain assumptions. The departments of physical therapy and respiratory therapy had no previous payment for service history to work from; therefore, the pro forma for these departments were based upon staffing a clinic two days per week with two clinical faculty personnel. Furthermore, the anticipated revenue projections for these departments were based solely on the State of Tennessee reimbursement rates for Medicare and Medicaid services. The pro forma also took into account a twenty- percent no show rate, which is normal for most outpatient health care services. The departments of audiology and speech pathology had preexisting clinics in place and revenues for the pro forma were based the previous fiscal year's income statement. The psychology department will have involvement in the clinic, but since this department belongs to another college it is not clear as this time how that revenue will impact the ETSU Clinic.

Figure 3

Table 1: Pro Forma Statement

Department	Projected Revenue by Department
Respiratory Therapy	$ 12,803.24
Physical Therapy	$ 75,268.96
Dental Hygiene	$ 9,000.00
Audiology	$ 85,431.00
Gross Revenue	$182,503.20
Estimated Expenditures	
Salaries	$ 109,000
Utilities	$ 7,000
Billing and Coding	$ 6,500
Total Expenses	$ 127,500
Net Income	$ 55,003.20

CHAPTER 4: RESULTS

The review of the literature proved to be a limited source of information for this study. The concept of multidisciplinary educational training clinics is an emerging idea. The literature review was concentrated around four primary bodies of knowledge: multidisciplinary approaches to care and how this approach impacted outcomes, evidence of multidisciplinary health care education in colleges and universities, multidisciplinary clinics designed to facilitate the needs of special populations, and the role of multidisciplinary clinics in research, grant funding, and mentorship.

The results from the literature showed that there is a strong correlation between improved clinical outcomes and patient care. Studies demonstrated that when evidence of allied health practitioners' collaboration was present, patient care improved. This collaboration resulted in a better educational experience for students and greatly improved prophylactic health care education increases, and the incidence of patient morbidity and infirmary decline.

The development of the financial pro forma and clinical model brought focus to the geographical breakout of target markets the clinic would serve and highlighted the various disciplines that would or could provide services to the patients in these target markets. The business plan (not listed in this text) lists the strengths, weaknesses, opportunities and threats (SWOT analysis) of the ETSUbased clinic. The results of this SWOT analysis revealed the critical concern regarding how an ETSU based clinic would be viewed by members of the medical community that had previously partnered with ETSU. The pro forma statement concluded that the clinic could operate at breakeven or become profitable. Using a combination of actual and conservatively projected revenue streams, the clinic is projected to show a $50,000 profit in its first year of existence.

CHAPTER 5: DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

DISCUSSION

While multidisciplinary allied health clinics are found in the United Kingdom and in Canada, they are not common in U.S. healthcare. The review of the literature provided few examples of multidisciplinary clinics. When examples were found, even fewer were examples of such clinics operating in a university setting. The academic community, especially the Canadian medical community has recognized the importance of multidisciplinary education and its potential for positive impact on patient outcomes and improving the educational experience for practitioners. American universities have been slow to adopt this model of educating their allied health professionals and as a result any model similar to that found in Canada is a unique find in the United States.

Some of the examples of multidisciplinary allied health clinics were limited to the practice of rehabilitative medicine. This concept is not new since in comprehensive outpatient rehabilitation centers the professions of occupational therapy, physical therapy, and speech pathology operating under a comprehensive patient plan of care have become the norm.

The review of the literature found that new outpatient centers are developing outside of traditional rehabilitation clinics. Examples included disease specific multidisciplinary care such as diabetes, breast cancer, and ophthalmology disorders. These emerging disease specific clinics treat the disease from every aspect (patient centered care) including psychosocial support, pain management, education, pharmacology, and spirituality. No single practitioner including physicians is capable of facilitating this broad scope of care. This approach illustrates both the need for and the benefits of a multidisciplinary team approach to care.

CONCLUSIONS

A single question guided this research: “Should a regional university in East Tennessee develop a multidisciplinary allied health clinic to better serve the community, allied health students, and faculty?” The results of this case study indicated that the ETSU should move forward with this venture, but should do so with caution and by providing faculty members with ample opportunities to develop collaborative relationships and the skills needed to become managers in a clinic setting. Additionally, ETSU should seek extramural funding to supplement the start-up costs of such an endeavor. Furthermore, the results revealed that a multidisciplinary allied health clinic would be a financially responsible course of action and would address a community of need for the region.

Based upon the input of the formative and summative committees the proposed multidisciplinary allied health clinic could help ETSUbetter serve the community. For example, formative committee member Dr. Ester Verhovsek commented that the current model for training future allied health practitioners was dated. It was her belief that a new model of collaboration would help new practitioners understand the emerging paradigm's focus on the synergies of collaboration rather than on the traditional focus on isolated treatment encounters. Another committee member, Dr. Robert Barnhart noted that efforts targeting multidisciplinary approach should enhance communication and improve patient outcomes.

Regarding the enhancement of allied health students' educational experience by their experiences in a multidisciplinary clinic, the study concludes that there would be benefits. Currently students in allied health education programs spend little if any time with practitioners from other disciplines. Committee member, Dr. Randy Byington stated that education in the clinical and rehabilitative sciences is delivered in a silo with little interaction between disciplines. Patients experience multiple issues and these issues are best addressed by multiple healthcare team members. A multidisciplinary clinic would provide students an opportunity to experience a different view of patient care and gain an understanding of and appreciation for the expertise of other allied health practitioners.

While this enhancement for clinical education was noted, the business plan indicated that the University would need to assure that the relationships with current providers of students' clinical rotations were not damaged as the new multidisciplinary clinic was developed. Following an ecosystem based business strategy model, the ETSUbased clinic must enhance the current network of patient care and student education rather than compete with that current network. The multidisciplinary allied health clinic will become a new member of the existing ecosystem currently supporting the region's allied health practitioners.

The study found several benefits for faculty members of the ETSU College of Clinical and Rehabilitative Health

Sciences. A multidisciplinary approach would provide faculty members with opportunities to explore the interrelationships often found in disease processes. Additionally the clinic would provide opportunities for involved departmental faculty to complete their required service to meet tenure and promotion criteria. Faculty service in a multidisciplinary allied health clinic would also help ETSUto fulfill its mission of impacting the citizens of the region. The study also found that there was a growing faculty interest in interdisciplinary research. Patients presenting to a multidisciplinary allied health clinic such as that proposed often have multiple manifestations of a single disease process. Collaborative research would allow the faculty to work together as they studied the implications of these multiple manifestations.

IMPLICATIONS

AnETSU based multidisciplinary allied health clinic could become the future cornerstone for both patient care and allied health education. If students are to be well prepared to function in rapidly changing healthcare delivery models, it is critical that they be provided every opportunity to experience

RECOMMENDATIONS FOR THE IMPROVEMENT OF PRACTICE

This practicum will heighten awareness of multidisciplinary practice in the allied health professions. It is recommended that other college or university based allied health programs should pursue curriculum that promotes interdisciplinary collaboration. It is further recommended that the college or university support these changes in curriculum with clinical experiences that demonstrate the benefits of this approach to healthcare. Implementation of these changes will provide the marketplace with allied health practitioners that have a better understanding of the contributions their colleagues make to patient care. Graduates of these programs will be better able to understand and more willing to utilize other practitioners' skill sets when it is in the best interest of the patient. Academic institutes that invest in multidisciplinary education are investing in an improvement in clinical outcomes and an expansion of the body of knowledge that is a logical outcome of multidisciplinary research. This is a substantial return on investment for all stakeholders.

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