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# Michigan College of Optometry Interprofessional Wellness Clinic: Focus on Diabetes

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## Abstract

The Interprofessional Wellness Clinic held at the clinic of the Michigan College of Optometry at Ferris State University is an interdisciplinary patient care and educational project that has been in existence since January 2004. The objective of this endeavor is to develop an interdisciplinary collaborative clinic utilizing optometry, nursing, and pharmacy students and faculty to facilitate the understanding and appreciation of the contribution of each profession to the total management of diabetes. Additionally, each patient receives discipline-specific education and management from each profession, resulting in a much improved understanding of their disease state, medications, modifying factors, and personal support from multiple disciplines. This article describes how the Interprofessional Wellness Clinic functions, the impact of collaborative interdisciplinary interaction and learning, and the benefits of such a clinic to patients, students, and faculty of the clinic.

## Introduction

In the United States, 18.8 million Americans have been diagnosed with diabetes and an estimated 7 million people in this country have undiagnosed diabetes (CDC, 2011). The combined total (25.8 million) of those with diagnosed and undiagnosed diabetes is 8.3 percent of the nation's population (as of 2010). Diabetes preferentially affects the elderly population. It is estimated that 26.9 percent of Americans 65 years of age and older are diabetic (CDC, 2011). Additionally, 35 percent or 79 million adults in the United States age 20 and older are considered to have prediabetes with blood sugar levels or glycosylated hemoglobin A1c levels higher than is considered normal yet not sufficiently elevated to be considered diabetic (CDC, 2011). Given these statistics, it is not surprising that the costs related to diabetes are substantial with an estimated \$116 billion in direct medical costs and \$58 billion in indirect

health-related costs in the United States alone (CDC, 2011).

With rising healthcare costs, it has become progressively evident that efficiency for both patients and practitioners must be increased significantly. As such, interprofessional healthcare is a trend in the delivery of health-related services which is becoming increasingly common. The efficiency provided by an interprofessional healthcare setting is of vital importance to the healthcare system in general as the full spectrum of care can be more effectively delivered to patients. This becomes more crucial in a climate which is facing an increasing shortage of providers in certain geographic regions. In interprofessional healthcare, communication between practitioners becomes the key element which places the patient as the focus of the healthcare system (HealthForceOntario, 2010).

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Canada has become a leader in the implementation of interprofessional care and is often looked to by others as a system to model in employing similar techniques elsewhere. A study in Ontario cited the need to provide integration between the education of healthcare providers and the health services that will ultimately employ those healthcare professionals after graduation. Those providers and institutions involved in the study identified fundamental and essential competencies needed by providers, students, and their respective institutions. Also, the functions and responsibilities of each discipline within the interprofessional care group were firmly established to better define the roles of each profession in the system (HealthForceOntario, 2010).

The United States has been advancing the interprofessional healthcare movement with a rapid increase in the availability of interprofessional healthcare services. With the growth of this model of healthcare delivery, it is imperative that it be embraced by educational institutions and the end users of graduating healthcare providers, the healthcare system itself. One of our goals in the establishment of the Interprofessional Wellness Clinic is to expose our students and local healthcare providers to one model of interdisciplinary care. This is designed to enhance understanding and to motivate potential implementation of an interprofessional healthcare delivery arrangement on a larger scale.

In many ways, diabetes is an ideal medical condition on which to focus a multi-disciplinary model of healthcare delivery. It is a very common condition, making patient recruitment relatively straightforward. Since diabetes affects multiple organs and body systems, various healthcare providers are required to evaluate, treat, and monitor the disease. Additionally, with the utilization of the appropriate healthcare providers, many of the complications of diabetes can be avoided with proper care and patient education. With the delivery of care in one facility utilizing multiple healthcare disciplines, there is an economy of scale reduction in costs to patients and insurance carriers. Conducted in physically separate clinical settings with the various disciplines needed in diabetic care and education, patients can readily miss crucial aspects of total diabetic treatment and support. This is due to multiple variables including excessive cost, availability of care in a rural area, lack of preventative chronic care facilities, sometimes insufficient inter-provider communication, and transportation issues. These factors are in addition to the sheer

overwhelming nature of the coordination of care and navigation of insurance issues for the patient (Zgibor & Thomas, 2001).

A clinic was instituted in a primary care center at an academic Veterans Healthcare System clinic utilizing the concept of the Shared Medical Appointment (SMA). In the SMA model, multiple patients in a clinic see multiple interprofessional healthcare providers. In this quality improvement study, diabetic patients with known cardiovascular risk factors were examined and/or counseled by an internist, nurse practitioner, nurse, pharmacist, and psychologist. This was a relatively substantial departure from the multiple single-practitioner visits that had been the traditional style of patient examination and counseling practiced previously at this facility. In this model, measured outcomes indicated that there were both reduced diabetic and cardiovascular risk factors after examination and patient education at the clinic. There were, however, logistical obstacles that needed to be overcome for the clinic to run as efficiently as possible. The success of the clinic was deemed to be of significant enough proportion to continue the diabetic clinic as well as to institute similar clinics in other patient care areas. This was designed to increase efficiency and efficacy of total patient healthcare and did accomplish that goal (Kirsh et al., 2007).

Ferris State University, the home of the Michigan College of Optometry, is located in Big Rapids, Michigan. It is situated in a rural area with a reasonably large patient population considered to be less than adequately cared for regarding many health issues. This is in part due to a generalized shortage of healthcare facilities and providers but also due to varying levels of impoverishment. This results in an inability on the part of some patients to pay for healthcare services and supplies. This was part of the target patient population of the clinic. Any other patients who are diabetic are also encouraged to utilize the services of the clinic whether or not they have health or vision insurance.

One of the initial goals of the Interprofessional Wellness Clinic was to go into the community and perform diabetic screenings. The purpose was to identify those potential patients who had elevated blood glucose levels relative to the amount of time since the patient had last eaten. Patients who demonstrated high blood sugar levels were referred to the clinic. The clinic also depended on referrals from the other allied health pro-

professional education programs at Ferris State University as well as local healthcare providers. At this time, the clinic receives patients primarily from word of mouth referrals, repeat patients, healthcare provider referrals, and recommendations from health screenings which are still occasionally offered. In this specialty clinic at the Michigan College of Optometry, we utilize the diabetic eye examination as a means to attract patients to the clinic. Regular ocular examinations are necessary for these patients and we deliver value-added care that is provided by nursing and pharmacy students and faculty.

From a patient care perspective, the objective of the Interprofessional Wellness Clinic is to offer multidisciplinary evaluation, treatment, and education to each diabetic patient. The ultimate goal is to provide the patient with comprehensive diabetic care from optometry, nursing, and pharmacy. Each discipline is also responsible for educating each patient completely in the context of the given discipline and the total health of the individual. This education is given with regard to the degree of the effects of diabetes on each patient. This is followed by offering guidelines concerning the means by which the patient is able to further control the effects of diabetes or prevent subsequent damage from occurring. However, some studies and meta-analyses indicate that such education, while accomplishing reductions in hemoglobin A1c and blood sugar measurements, generally produce only modestly improved results (Gary, Genkinger, Guallar, Peyrot, & Brancati 2003; Deakin, McShane, Cade, & Williams, 2005).

Ferris State University also has a dental hygiene program which would be another appropriate healthcare discipline to incorporate into the Interprofessional Wellness Clinic. Dental hygiene students and faculty were formerly included in the clinic. However, the dental hygiene curriculum was revised such that the students from that discipline were in class at the same time as the Interprofessional Wellness Clinic was conducted. This precluded these students from participating in the clinic from that point forward. We are attempting to work with the dental hygiene program to restructure their class scheduling to again allow the participation of dental hygiene students and faculty in the Interprofessional Wellness Clinic.

The Interprofessional Wellness Clinic is also designed to provide interdisciplinary education to the students

who provide healthcare to the patient participants in the clinic. This education involves developing an appreciation for the skills of each discipline and understanding the scope of practice of each profession. Another goal is to understand the overlap that exists between the professions involved in the clinic as well as other disciplines we receive referrals from or to whom we refer patients. It is also essential that the students learn how important it is for each profession to provide complete care within their field and scope of practice so that all critical components of patient care are performed. In this way the patient is not only provided care but also encouraged to take ownership of his or her condition. Thus the patient is better able to adopt the necessary steps to improve the quality of health and life that can be obtained in spite of the diabetes.

## Description of the Clinic

### *General Clinic Information*

The composition of the Interprofessional Wellness Clinic at the Michigan College of Optometry consists of two 4th year students and one faculty member, one 4th year pharmacy doctoral candidate and one faculty, and one final year nursing student and the associated member of the nursing faculty. The participants utilize examination rooms or consultation rooms depending upon the function required for a given portion of the examination sequence. Because some patients have severe diabetic neuropathy, we attempt to keep patient movement to a minimum for their comfort. Four patients are scheduled during a four-hour time period in two groups of two patients with the initial pair scheduled one half-hour apart. Staggering the patients in this manner allows all disciplines to be in a rotation sequence which facilitates the progression of the patients through the examination cycles in an efficient manner as is illustrated in Figure 1 (following page). Approximately halfway through the complete clinic time period, a second group of two patients is scheduled one half-hour apart and the examination sequence is repeated.

The entire clinical experience for a patient takes approximately two hours from start to completion of the examination. All patients in the clinic are made aware of the two-hour length of the clinic before they are scheduled should this time span be of concern to any patient. The patients in this clinic are encouraged

**Figure 1**

*Interprofessional Wellness Clinic Flowchart*

	Patient 1	Patient 2	Patient 3	Patient 4
8:00	Patient Check In			
8:10	Nursing Blood Draw			
8:20	Optometry Preliminary	Patient Check In		
8:30		Nursing Blood Draw		
8:40	Nursing Examination, Patient Education	Optometry Preliminary		
8:50				
9:00	Optometry DFE and Patient Education	Nursing Examination, Patient Education		
9:10				
9:20	Pharmacy Review and Patient Education	Optometry DFE and Patient Education	Patient Check In	
9:30			Nursing Blood Draw	
9:40	Interprofessional Review and Patient Questions/Education	Pharmacy Review and Patient Education	Optometry Preliminary	Patient Check In
9:50				Nursing Blood Draw
10:00		Interprofessional Review and Patient Questions/Education	Nursing Examination, Patient Education	Optometry Preliminary
10:10				
10:20			Optometry DFE and Patient Education	Nursing Examination, Patient Education
10:30				
10:40			Pharmacy Review and Patient Education	Optometry DFE and Patient Education
10:50				
11:00			Interprofessional Review and Patient Questions/Education	Pharmacy Review and Patient Education
11:10				
11:20				Interprofessional Review and Patient Questions/Education
11:30				
11:40				Flex Time and/or Discussion With Clinic Intern Participants
11:50				
12:00				

to be accompanied by a family member or any other person that has an interest in the welfare of the patient. Patients consistently do well throughout the duration of the clinic, however, we do provide diabetic snacks should blood sugar levels become low during the time period involved. It is a rare occasion in which a patient needs such assistance during the examination. Additionally, all portions of the clinic tend to run relatively on time, resulting in few examinations lasting longer than the two hours which have been allotted.

During the course of the examination, each patient will have blood drawn to determine blood glucose level and hemoglobin A1c value as well as a lipid panel. Evaluation of the extremities is performed along with dietary and general health discussion and counseling. A complete ocular examination with dilation is performed

and is followed by consultation regarding the role of diabetes and its control in ocular and systemic health. Patients are also assessed regarding their use of prescribed and over-the-counter medications and counseled on any appropriate changes in drug use or non-use that are recommended. After the clinic has been completed, each discipline writes its portion of a letter which will be sent to the patient’s primary care provider and/or specialty provider(s) as a conduit of communication between our three disciplines and the profession(s) represented by the patient’s other provider(s).

*Specific Goals of the Clinic*

There are numerous clinical goals with regard to patients. The first of these is to establish a discipline-specific baseline of the diabetes itself and of any related

or non-related conditions such as blood pressure and hypercholesterolemia. Our objective is for patients to return to our clinic at the recommended interval because of the comprehensive care and education they have received. Therefore, it is imperative that we obtain complete and accurate data to assess change that may be noted at any subsequent follow-up examination. It is not the intent of this clinic to supersede the role of the patient's primary care or other provider, but to be adjunctive to that care. We simply need to have the necessary and accurate data that is required for each of the disciplines to make the proper assessments and recommendations to the patients.

Another specific goal for our patients is that each of the disciplines involved in the clinic provides appropriate education and counseling based on patient history and the findings of the other professions represented in the interdisciplinary clinic. This goal is central to providing the patients with the information necessary to understand their present state of health, thereby arming them with the knowledge that is necessary to attempt to avert potential future complications of their diabetes. Such counseling often revolves around lifestyle alterations that could minimize future secondary complications of the disease. The ultimate purpose of this education is to have the patients in the clinic become involved in their own care, facilitating compliance with recommendations that are made to the patient.

Specific goals for our students are also incorporated into the Interprofessional Wellness Clinic. One basic goal is clearly to improve the clinical skills of our students in dealing with patients who are diabetic. The consistent experience that our students have with patients makes them much more comfortable with the disease itself and its impact on patients' quality of health and their quality of life. Exposure to the range of personality types and reactions patients have to their diabetes is also crucial to treating the entire person in these patients. Students experience the full scope of patient reactions to this condition ranging from pure acceptance and compliance to individuals who have resigned themselves to a life of hopelessness regarding their condition and are despondent about their situation in life. These two clinical situations require two totally different approaches to the patients and radically different proposals to these patients regarding their own role in controlling their diabetic state. Students then begin to understand that it is important to take different approaches to the vari-

ous patient mindsets. They learn to offer praise in some situations and, in others, hope through lifestyle changes along with commendation for what is being done acceptably.

Another aim for the students in the clinic is to interact with each other and observe one another when examining and counseling patients. In our standard operating procedure documentation for the students it is stated that "Every attempt to communicate with all disciplines is highly encouraged and we will make a conscious effort to ensure that we all observe, teach, and interact between the professions." The end result of this type of interaction is the appreciation and mutual respect of the roles, the extent of professional knowledge utilized by other practitioners, and the scope of practice of the other disciplines. This also contributes to the students' understanding of the overlap between the professions and how the disciplines build on each other in terms of examination, evaluation, treatment, and patient education.

An additional goal for our students is to gain the skills sets necessary to function independently in an interdependent healthcare environment. In this manner we believe that students will develop the aforementioned appreciation and respect for not only the other disciplines, but also their own profession. This is a critical step in fostering a comprehension of the efficiency and efficacy of interprofessional healthcare.

## Clinic Standard Operating Procedure

### *General*

All appointments in the Interprofessional Wellness Clinic are made and facilitated by the university Eye Center staff. Four diabetic patients are scheduled for each four-hour clinic. When an appointment for the clinic is made, the office staff requests that each patient fast after midnight prior to the actual appointment. Patients check in at the reception desk and complete a patient history form before coming into the clinic itself. Once the patient completes the history form and returns it to the front desk, the office staff compiles the patient's file with the necessary forms for a patient encounter. As of this time, we do not have electronic medical records, so the appropriate forms are placed in a physical file.

Again, when students are not interacting with a patient, we expect and encourage them to observe and interact with the other disciplines as well as to teach observing students about their profession. Every attempt is made to examine and counsel a patient in a manner which does not interfere with patient care. What follows is an accounting of the sequencing of a patient encounter and a description of what each profession does at each stage of the entire examination. Figure 1 diagrammatically depicts the encounter sequence visually as well as illustrating how an entire clinic is sequenced with four patients in a perfectly-timed clinic.

#### *Nursing: Initial Patient Encounter*

When the file has been completed by the office staff, the nursing student greets the patient and escorts him/her to the Interprofessional Wellness Clinic examination room which contains the blood testing and other instruments. After briefly talking with the patient to place him/her at ease, the nursing student informs the patient that he/she is going to be taking a blood sample and explains the purposes of the blood tests which are going to be performed. The nursing student then draws the blood, fills the appropriate tubes, and begins the testing instrumentation. Once the testing equipment has begun processing blood samples, the nursing student takes the vital signs of the patient and records them. Vital signs include blood pressure, pulse, and respirations. By drawing the blood prior to taking the vital signs, the blood testing instruments have finished their cycles at approximately the same time that taking vital signs has been completed. This adds to time efficiency, but could result in some inaccuracy in measured vital signs. An elevation or depression of any vital sign(s) results in the affected sign(s) being repeated by the nursing student at the subsequent nursing encounter described later in this paper. This provides a redundant check on the parameter(s) in question. The nursing student then escorts the patient to an optometry examination room and transfers the patient to the optometry student responsible for that patient.

#### *Optometry: Initial Patient Encounter*

After initially greeting the patient, the optometry student proceeds with the comprehensive eye examination. The initial portion of the examination consists of taking a careful history in the context of the patient's general medical condition and any ocular or visual

chief complaint(s) that the patient may have. After the history, the optometry student performs the standard vision entrance tests to assess the patient's present level of vision with any correction the patient may have. The student also evaluates ocular muscle function and balance, pupillary reactions, general neurological function, and automated FDT visual fields. The optometric student then performs a refraction to determine the patient's spectacle prescription and best corrected visual acuities. Additional appropriate testing is done at this time if any unusual examination results were obtained. Slit lamp biomicroscopy is performed next to assess the health of the ocular external and adjacent structures and the structural components of the eyes to the back of the lens. Tonometry is then performed and drops are instilled in the patient's eyes to dilate the pupils for a comprehensive examination of the retina and deeper structures of the eyes for diabetic or other complications. The optometry faculty member then assesses any abnormal findings discovered by the optometry student to determine the accuracy of the initial portion of the optometric examination.

#### *Nursing: Subsequent Patient Encounter*

At this point, it takes approximately 20 minutes for the dilating drops to completely dilate the patient's pupils. The nursing student returns to the optometry examination room and completes a thorough nursing history including an account regarding diet, exercise, and other lifestyle behaviors that affect diabetes and other general health circumstances. Following the history, the nursing student performs a foot examination on the patient. The feet are inspected for decreased circulation, capillary refill, edema, cyanosis, and new or old sores or injuries.

Following the foot examination the nursing student tailors individualized patient education based on patient history, lifestyle behaviors, and examination findings, including blood testing results. Blood test results include present blood glucose level, hemoglobin A1c, total cholesterol, high density lipoproteins (HDL), low density lipoproteins (LDL), non-HDL cholesterol, LDL/HDL ratio, and triglyceride level. This counseling by the nursing student includes a discussion of examination findings, nutrition, exercise, foot care, oral hygiene, skin care, and any other matters appropriate to the individual patient. It has been demonstrated that nursing intervention with diabetic patients has a sig-

nificant impact on not only reducing hemoglobin A1c values, but also blood pressure and lipid levels. In general, such nursing counseling has a greater impact on reducing diabetic risk factors than a doctor's patient education (Davidson, Castellanos, Duran, & Karlan, 2006; Hiss, Armbruster, Gillard, & McClure, 2007). Nursing students have access to diabetic flip charts illustrating diabetic complications as well as anatomical models to utilize during their patient education. These are designed to help the patient understand the underlying process of diabetes as well as the complications of diabetic progression. Pamphlets and brochures are also given to the patient highlighting the pertinent areas discussed during the education process, particularly those that the patient may have difficulty remembering.

#### *Optometry: Subsequent Patient Encounter*

When the nursing student and faculty member have completed their patient education, the optometry student is informed that the patient is ready for the dilated fundus examination. At this stage the optometry student has the blood testing and nursing examination results in which to frame his/her ocular examination findings and patient education. The optometry student completes a detailed and systematic examination of the internal structures of the eyes. The student is examining for not only diabetic changes, but also incidental issues that may exist in the eyes that were discovered previously during the examination. After completing the internal examination, the attending optometry faculty member performs a complete internal examination as well to ensure that the optometry student has accurately described the dilated fundus examination findings. Baseline fundus photographs are always obtained for patients that have not been examined in the clinic previously. If any signs of diabetic retinopathy are detected at any examination, fundus photos are taken at that and any subsequent visits for proper documentation of potential progression of the disease manifestations.

Following the dilated fundus examination, optometric patient education is performed in the same manner as nursing education was done. Here the emphasis is on the ocular structures and present or potential diabetic manifestations in the patient's eyes. If there are ocular expressions of the patient's diabetes, it is described to the patient first as changes that have taken place in the eye(s). It is then emphasized that the eye is the only place in the body in which these signs can be directly

observed. It is further explained that if we detect changes in the eye(s), it is assumed that they are occurring in other organs in the body as well. This counseling is also accompanied by visual demonstrations in picture or model form so that the patient is better able to appreciate the nature of the ocular changes or potential future manifestations of the disease. Finally, the patient is encouraged to have a minimum of annual eye examinations to monitor for the appearance of diabetic retinopathy or progression of retinopathy. Should any diabetic retinopathy be present, examinations may be required more frequently than yearly. Optometrists and ophthalmologists have been and continue to be critical members of the diabetic health care team to prevent vision loss and subsequent systemic disease that may occur as the result of diabetes (Aiello, Cahill, & Wong, 2001).

#### *Pharmacy Patient Encounter*

At the completion of the optometric portion of the examination the optometry student escorts the patient to the pharmacy doctoral candidate and attending faculty member. Pharmacy members perform a case history built on that provided by nursing and optometry as well as the examination findings of nursing and optometry. Medications are reviewed with the patient regarding the filling of prescriptions and compliance with medication dosing intervals. Potential side effects of all the medications as well as contraindications are discussed with each patient so that they have a better understanding of the effects, wanted and unwanted, of each medication.

Pharmacy members review tobacco and alcohol use with each patient and provide appropriate education and guidance to patients who may have issues in this regard. Pharmacy members also review the patient's diabetic medication regimen, in the context of accepted medical guidelines for the treatment of diabetes. This is all done in light of the results of the blood tests performed in the clinic. Pharmacy members also utilize patient reports of blood sugar control prior to the appointment such as home blood glucose measurements and recalled hemoglobin A1c results from previous practitioner encounters. This information must be tempered by the fact that this data is merely remembered by the patient, not recorded. Pharmacy plays a crucial role in enhancing patient compliance due to the knowledge base of medications and experience in working with patients to utilize medications appropriately. It has

been demonstrated in various studies that interaction between the patients and pharmacists have resulted in greater reductions in hemoglobin A1c values than with some other healthcare providers (Wubben & Vivian, 2008; Johnson, et al., 2008).

Recommendations to the patient's primary care physician are given if there are significant issues of control of blood glucose, lipids, blood pressure, or other health conditions or if medication side effects and/or drug interactions are present. This is a matter which requires a great deal of diplomacy to approach in all circumstances as it is not our role to function as a primary care provider. Rather we must communicate with the patient's other providers as a team approaching the total care of the individual patient. In these cases our report to the primary care provider generally states that "consideration may be given to" either increasing a dosage or adding another pharmacological agent so the primary care physician does not feel as though his/her judgment is being called into question. Physicians have been very receptive to our report letters and have not, to our knowledge, been offended by suggestions offered in the reports. Most physicians have encouraged their patients to return to our clinic for further ocular care due to the comprehensive nature of the clinic.

#### *Patient Case Review*

After the pharmacy student and faculty member complete patient education and counseling, the patient has an opportunity to ask any additional questions that he/she may have. Then the patient is taken to the check-out desk to make any necessary follow-up or referral appointments or to check out.

In this clinic students are able to experience the complete spectrum of patient reactions to their diabetes. These reactions range from acceptance, compliance, and resultant favorable examination results and prognoses to anger, despair, hopelessness, and resulting diabetic pathology and unfavorable forecast. Some patients have given up hope that their diabetes can be controlled and become despondent about their future, some to the point of mental and physical depression. While we do not offer psychological or psychiatric counseling in our clinic, we do discuss the need for the patient to relate these feelings to their primary care physician for appropriate referral. We also indicate our concern for the welfare of these patients in our letter to the patient's

physician, suggesting potential referral to an appropriate mental healthcare provider.

At this time nursing, pharmacy, and optometry students and faculty meet for a review of the case. At the review the case is essentially summarized and discussed. Each student, with faculty input, highlights his/her history, examination, evaluation, treatment plan, and education including any recommendations to the patient. In this review as well as in the observation of other disciplines and interactions with their members, students become very aware of the place of their profession as well as other allied healthcare providers in the interdisciplinary care of the diabetic patient. This is a critical element in fulfilling the educational goals of the Interprofessional Wellness Clinic.

Such reviews are teaching opportunities to examine the basic pathophysiology and subsequent effects of diabetes on our patients. This also allows for analysis of the effects of medication, diet, exercise, and other lifestyle factors on the presence or absence of the complications of diabetes. These reviews also assist the students in their understanding of how blood glucose levels, A1c values, lipid values, and blood pressure are affected in and by the diabetic disease process. In reviewing the findings it becomes apparent to the students what the roles are of nursing, pharmacy, optometry, podiatric care, dental health, primary care providers, and medical specialties in the complete care of diabetic patients.

#### *Reporting Letter*

After the clinic is completed, a letter summarizing the findings, impressions, and recommendations of each discipline is created. In compliance with the Health Insurance Portability and Accountability Act (HIPAA) regulations, patient examination forms are posted on a secure university server that can only be accessed by members of the interprofessional team. A student from each discipline writes a portion of the letter outlining notable history, examination findings, impressions, and patient education and counseling that were completed in the clinic. The segment of the letter is written in a reporting fashion understanding that another healthcare provider will be reading it as a summary of findings for that particular patient encounter. Each section of the letter is reviewed by the appropriate faculty member from that discipline for completeness and the letter is modified by the student if changes need to be made.

We are certain to have the report letter sent to the patient's primary care provider in a prompt manner. For a Friday morning clinic, for example, nursing is required to have their portion of the letter posted to the server by the end of the following Monday. Pharmacy is expected to have their thread for the letter completed by the end of the Wednesday following the examination. Optometry is then required to have their portion of the letter completed by the Friday morning clinic one week following the patient's examination. At the same time, the optometry student also combines all portions of the letter into a single document along with all the necessary components to form a professional reporting correspondence. The final letter is then reviewed by the optometry faculty member and printed for signing on clinic letterhead one week after the patient's examination. The letter is signed by all members at the subsequent clinic and mailed to the patient's primary care provider, medical specialist, and/or patient care facility to facilitate communication between our multi-professional team and other healthcare professionals. This enhances the interdisciplinary nature of diabetic healthcare by yet another layer.

## Discussion

This paper presents the Interprofessional Wellness Clinic at the Michigan College of Optometry at Ferris State University as a model for delivering interdisciplinary care to diabetic patients. This clinic also provides students in the nursing, pharmacy, and optometry programs at the university a greater appreciation of what interprofessional healthcare entails. This includes how their profession fits into the overall structure of interdisciplinary care and what other professions contribute to and how they augment the total care of diabetic patients. Participation in this interdisciplinary diabetic clinic ensures that students are better aware of the interprofessional nature of healthcare, regardless of the patient's medical condition. This holds true whether it be in a stand-alone setting like the Interprofessional Wellness Clinic at the Michigan College of Optometry, a hospital, or among providers who are not associated under one roof.

During the development of this clinic, various scheduling formats were attempted to facilitate efficiency with the various disciplines being involved in the care of the diabetic patients. Many of the sequences the patients progressed through resulted in one or more disciplines

waiting for the patient to arrive, leading to extensions in the total time frame of the examinations. It was necessary for each profession represented to analyze its own internal examination sequences so a more favorable logistical structure could be determined. These systems needed to be adjusted to accommodate the other disciplines' requirements in terms of allowing adequate time to complete their portion of the examination as well as the information they needed from other professions. This is a constantly evolving process that must be continuously addressed to provide maximal efficiency in terms of time for each patient moving through the clinic.

As stated previously, Ferris State University has a dental hygiene program that formerly participated in the Interprofessional Wellness Clinic along with nursing, pharmacy, and optometry. All diabetic patients need to have oral health discussion incorporated into diabetic education and should have annual oral examinations to ensure there are no complications in that regard (International Diabetes Federation Clinical Guidelines Task Force, 2009). Presently nursing students provide basic oral hygiene patient education to the patients. We have been in discussion with the dental hygiene administration and faculty regarding their return to the clinic. If they are able to rearrange their curricular offerings so that their students are not in class during the clinic, we will renew the inclusion of dental hygiene students and faculty into the clinic. There are other professions that could also be included in the Interprofessional Wellness Clinic such as a registered dietician, podiatrist, and others. One issue with adding additional disciplines is that Ferris State University does not have any other allied health provider programs to augment the clinic with students and faculty. Additionally, more professions would extend the time frame of the examination beyond two hours. This would result in an inordinate amount of time spent in the clinic for a great number of diabetic patients.

At the end of a given semester, interdisciplinary team members often discuss the fact that they now have a greater appreciation of the contribution that other professions provide in terms of integrated patient care. Students are often very grateful for the opportunity to deliver total care for patients that require multiple professions to provide evaluation and treatment for the needs of these patients. Additionally, the students feel much more comfortable working independently on one

hand while consulting and reviewing interdependently on the other hand. Students also greatly appreciate the manner in which faculty allow the students to counsel the patients themselves with faculty present to fill in the gaps that may exist in patient care and education.

Faculty members associated with the Interprofessional Wellness Clinic believe very strongly that the exposure that our students have to the other professional students is invaluable in assisting them in understanding what it means to provide comprehensive care. It is extremely rewarding to watch the students grow and mature in their ability to conduct a comprehensive and efficient examination, provide appropriate patient counseling, and develop the enhanced empathy skills necessary to offer patients compassion in caring.

Comprehensive healthcare does not exist in the vacuum of our own profession, but rather with the adjunctive care provided by other allied healthcare providers as well as that provided within our own discipline. The future of healthcare is strongly proceeding in the direction of interprofessional teams, whether housed in one location or in individual facilities. This change in the path of healthcare needs to be addressed not only in educational institutions, but also in the field to enhance the care of our patients in an efficient, efficacious, and cost-effective manner.

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