

Pilot Experience of a Family Practice-Based Combined Clerkship

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In order to explore alternatives in clinical undergraduate medical education, an experimental Combined Clerkship was developed and implemented on the Grand Rapids campus of Michigan State University. Two third-year medical students spent three half-days per week for 36 weeks seeing patients in the family practice office of a faculty member. Hospitalized patients from this practice were worked-up and used as the source of inpatient specialty learning. The students attended lectures and took oral and written examinations of all required clerkships, but had no specific hospital assignment during this time. Two hundred nineteen patients were followed by these students, compared to 174 required by the clerkships. All written and oral examinations were passed. In addition to meeting all clerkship objectives, the students cared for 680 outpatients presenting 1,035 ICHPPC-coded problems. The top ten diagnoses were identified collectively and individually, and were compared to other published studies for corroboration of representative patient problems. This project demonstrates that the objectives of required clerkships can be met in an alternative setting that allows the addition of other important experiences.

During the first two years at Michigan State University's College of Human Medicine (CHM), students are trained to think holistically about health care. Medical students are taught to approach medicine in a community context, to evaluate the whole person in his/her own milieu (family, friends, job, etc) without sacrificing a firm

background in the basic sciences. Paradoxically, in the last two years, they must suspend this perspective and the attendant behavioral science data base, and approach the patient as an experiment in the clinical laboratory of the physician: the hospital. They are asked not to learn any reality-based outpatient medicine, preventive medicine, and certainly cannot spend too much time getting to know the person with the disease. From the vantage point of a second year medical student, it may appear that the second two years are designed to grind an idealist into a technician.

The Combined Clerkship, a family practice-based approach to third year clinical learning, was designed to nurture idealism while teaching the same material covered in the traditional rotations.

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TIME	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8-9	ROUNDS AT BWH AND SMH	ROUNDS	ROUNDS	ROUNDS	ROUNDS	ROUNDS	ROUNDS
9-12		ROUNDS WORK-UPS AND SURGERIES	CLERKSHIP MEETINGS	SPARTA OFFICE	SURGERY MEETINGS AT SMH FOLLOWED BY FILMS/ROUNDS	SPARTA OFFICE	
12-1	LUNCH						
1-5		ROUNDS WORK-UPS AND SURGERIES PATHOLOGY LECTURES AT SMH: GROSS AND MICROSCOPIC	SPARTA OFFICE	ROUNDS WORK-UPS AND SURGERIES	ROUNDS WORK-UPS AND SURGERIES	CLERKSHIP MEETINGS	
EVE			ON CALL WITH EARY		ON CALL WITH EARY	ON CALL WITH EARY	

Figure 1. Average Week

Clinical curricular models were selected, and discussions with CHM faculty began to crystallize aims, values, and methods. Goals were defined as: (1) establishing competence in acute care equal to that of students in a traditional clerkship; (2) development of skills and perspectives necessary for the outpatient primary care done by most physicians, including continuity of care, preventive medicine, use of community resources, and knowledge of personal limits; and (3) understanding of the literature and research in medical education, epidemiology, and ambulatory care.

The 36-week program that was developed included three half-days in one author's family practice office in Sparta, Michigan (a town of 5,000 population, 15 miles from Grand Rapids). Any patients requiring hospitalization were sent to the Grand Rapids teaching hospitals. The students interacted with specialists and residents, and assisted at surgeries, deliveries, and other procedures while following these patients. They also attended the regular clerkship lectures and seminars, taking all oral and written examinations administered by the departments. In areas in which

the practice provided limited inpatient exposure, a supplemental hospital assignment was added.

The students' average schedule is shown in Figure 1. Roughly 30 percent of their time was spent at the office, 40 percent in the hospital (rounds, surgeries, etc), 20 percent in clerkship meetings, and 10 percent at specialty staff conferences. This diversity gave balance to the experience. There were also many ancillary experiences, such as sports physical examinations at night, medical staff and county medical society meetings, third-year physical diagnosis graduate assisting, and teaching nursing students at Grand Valley State College.

Materials and Methods

The inpatient data were kept in a modified version of a log book (Figure 2) developed at the University of Michigan¹ and currently in use by the Department of Internal Medicine at Michigan State University. All patients seen by the students, as well as their diagnoses, were recorded. Procedures included admitting histories and phys-

Name _____				Staff Individuals Involved	EVALUATION OF AMOUNT OF SUPERVISION AND TEACHING					CONFERENCES ATTENDED				
Date	Patient's Name or No.	Diagnosis	Procedure		0	1	2	3	4	Date	Where	Subject	Your Participation	Comment
ROUNDS														
Date	Census	Attending	Comment											

Figure 2. Student Log

ical examinations, venipunctures, amniocenteses, bone marrow aspirations, etc. All conferences attended were noted and evaluated. Daily rounds, patient census by specialty, attending physician, and a brief evaluation were also recorded.

Outpatient data were coded on cards (Figure 3) using the International Classification of Health Problems in Primary Care (ICHPPC) developed by the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (WONCA).² For comparison to the Virginia Study,³ the Southeastern Louisiana Study,⁴ and the Hershey Study,⁵ it was necessary to convert some of their E-book coded data to ICHPPC. This was done by use of a recently published conversion code,⁶ and may represent one of the first uses of this code. By correlation of these data, it was possible to compare the patient population seen by the medical students to that seen by a family physician and to compare the students' outpatient experience to that of a resident and a practitioner.

Results

The average weekly census of inpatients admitted from the Sparta practice included three medical patients, one surgical patient, one obstetric

patient every two weeks, and one pediatric patient per month. This totaled 4.75 patients per week, or 19 per month. For the entire 36-week experience, this translated to 171 work-ups on Sparta patients, plus 48 supplemental psychiatric and obstetric-gynecological work-ups, totaling 219, well over the 174 work-ups required by traditional clerkships.

In the outpatient setting, the students spent 83 half-days at Sparta seeing 680 patients in 815 visits. About one in six visits were revisits, which averaged 4.9 visits/session/student. This figure compares with Stern et al⁷ who described five primary care internal medicine residency programs in the Boston area. Residents in these programs saw an average of 4.8 to 5.6 patients/resident/session. It should be noted that the Sparta outpatient figure is an average. Initially, the students saw few patients; by the end of the experience, they were seeing nine to ten patients/student/session. This figure may represent the maximum number of patients for students without sacrificing a good learning experience.

Table 1 compares data from the Combined Clerkship (CC) study to three other studies with regard to number of patients seen, number of visits, and problems per patient. The Combined

Table 1. Numbers of Problems and Patients Seen

	Problems	Patients	Time Interval	Problems/Patient
Combined Clerkship	1,035	680	9 months	1.5
Hershey Study	1,640	592	30 months	2.7
Medical College of Virginia	526,196	88,000	24 months	5.9
Southeastern Louisiana	6,597	5,019	2 months	1.3

Table 2. Comparative Ranking of Specific Problems

Combined Clerkship	Problem	Hershey Study	Medical College of Virginia	Southeastern Louisiana
1	Medical examination	—	1	1
2	Upper respiratory tract infection	2	8	17
3	Lacerations/contusions/abrasions	7	3	12
4	Hypertension	3	2	2
5	Obesity	1	9	9
6	Tonsillitis	3	4	14
7	Prenatal care	—	14	—
8	Congestive heart failure	—	19	16
9	Oral contraceptives	—	40	—
10	Otitis media	6	11	10

higher incidence of lacerations, contusions, and abrasions. It has been suggested that the Sparta patient population may seek care for minor emergency services at the office before using hospital Emergency Rooms. Description of patient problems as demonstrated by this study has provided the groundwork for future evaluation of treatments administered and the outcomes of these treatments.

Conclusion

It has been demonstrated that objectives of required clerkships can be met in alternative settings that allow the addition of other important experiences. The Combined Clerkship has added an outpatient experience comparable in numbers to a resident's experience. Problem distribution has been similar to that of a family physician. Comprehensive care, chronic disease, office management, family practice literature, and research have

also enriched this program. Michigan State University's College of Human Medicine faculty members in Grand Rapids have evaluated these students as equivalent to their peers in terms of inpatient skills and have given a "Pass" grade for each required clerkship.

The Flexner Report⁸ in 1910 recognized the importance of the clinic and described it as the "backbone of medical education." The pressures imposed by increasing technology have caused a shift to a hospital-based medical education with a corresponding decrease in clinical outpatient experience. Despite changing times, the authors would agree with Flexner that the "dispensary" and hospital experiences should be balanced. The goals and content of family practice as currently described⁹⁻¹¹ offer a fertile territory for a resurgence of integrated undergraduate and graduate medical education. Family practice should now take the lead in exploring the general applicability of integrated clinical medical education.

Table 3. Comparative Ranking by Diagnostic Category

Combined Clerkship	Diagnostic Category	Hershey Study	Medical College of Virginia	Southeastern Louisiana
1	Supplementary Classifications	—	2	2
2	Accidents, poisoning, violence	10	4	12
3	Respiratory diseases	1	1	4
4	Circulatory system	3	3	1
5	Skin and subcutaneous tissue	8	9	6
6	Endocrine, nutritional, and metabolic	2	5	5
7	Pregnancy, childbirth, and puerperium	15	13	11
8	Genitourinary tract	5	6	3
9	Musculoskeletal and connective tissue	8	11	7
10	Physical signs/symptoms	14	13	—
11	Digestive system	7	8	8
12	Nervous system and sense organs	4	7	10
13	Mental disorders	6	10	9
14	Infective and parasitic diseases	9	12	12
15	Congenital anomalies	16	17	17
16	Blood and blood-forming organs	13	6	4
17	Neoplasms	12	15	15

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