Pathology Teaching Methods in Different Curricula in Undergraduate Education: A Pilot Study

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Introduction

Pathology education is taught using different curricula in the United States (USA) and abroad. There are many different versions of these curricula which makes it difficult understand the teaching methods and pathology subjects being taught (1,2). We compared the different teaching methods used in general and systemic pathology within traditional curricula (TC), semi-integrated curricula (SIC), and integrated curricula(IC) from fourteen medical schools. Since pathology teaching has transformed due to different curricula used in the United States (3-5), it is of interest to the amount of teaching in different subjects taught in pathology and the methods used in the different curricula. The goal of the study was to determine the different teaching methods and hours spent in teaching individual subjects in general and systemic pathology.

Methods

A pathology survey of 69 medical school was sent out to evaluate general and systemic pathology teaching methods in subjects taught at medical schools with different curricula affiliated with Group Research in Pathology Education (GRIPE). Fourteen schools responded to the survey (20.3%). Pathology lecture hours, TBL hours, PBL hours, and hours spent in other forms of teaching pathology subjects were counted and compared in general pathology and systems pathology subjects in four schools with TC, four schools with SIC, and six schools with IC. See table 1.

Results

Schools with Integrated Curriculum	Number Teaching Faculty
University of Sao Paulo, Brazil (USP)	18
Donkuz Eylul University School of Medicine, Izmir, Turkey (DEUS)	14
Eastern Virginia Medical School, Norfolk, VA (EVMS)	5
UCSF School of Medicine, San Francisco, CA (UCSF)	40
University of Kansas School of Medicine, Kansas City, MO (UKSM)	20
University of Alabama School of Medicine, Birmingham, AL (UAB)	35
Schools with Semi-Integrated Curriculum	
Icahn School of Medicine at Mount Sinai, NY, NY (ISMMS)	NA
Louisiana State University School of Medicine, New Orleans, LA (LSU)	9
Des Moines University, Des Moines, IA (DMU)	2
Federal University of Health Sciences of Porto Alegre, Brazil (FUHSM)	5
Schools with Traditional Curriculum	
Perundurai Medical College, Tamil Nadu, India (PMC)	6
Medical University of the Americas, Nevis, West Indies (MUA)	4
Universidad Rey Juan Carlos, Madrid, Spain (URJC)	4
University of South Carolina School of Medicine, Columbia, SC	6

Table 1. Listing of the schools surveyed with integrated, semi-integrated, or traditional curricula, and the number of teaching faculty involved in teaching pathology at each institution. Not Attained (NA)

	Integrated			Semi-integrated			Traditional		
Mean hours	General Pathology	Systemic Patholog	Total	General Pathology	Systemic Pathology	Total	General Pathology	Systemic Pathology	Total
Lecture	31.4±30.2	72.6±52.2	104	24.6±14.6	48.5±11.5	73.1	50±17.1	103±32.9	153
PBL	35	136	171	16.5	NA	16.5	4	9	13
TBL	27	69.5	96.5	NA	NA	NA	9	30	39
Other	27.3	76	103.	14	18	32	11.5	13	24.5

Table 2. The mean hours with standard deviations of teaching pathology by lectures within integrated, semi-integrated, or traditional curricula for General Pathology and Systemic Pathology. Overall lecture hours by teaching methods such as problem-based learning (PBL), team-based learning (TBL), and other methods of teaching for General Pathology and Systemic Pathology inside integrated, semi-integrated, or traditional curricula. Not Attained (NA).

Subjects Significant Difference T-test p values			
General Pathology Transitional vs semi-integrated		General Pathology Transitional vs integrated	
Nutritional Diseases	0.05	Adaptation Accumulation	0.031
Infectious diseases	0.033	Diseases of infancy and Childhood	0.022
Systemic Pathology Transitional vs semi-integrated		Systemic Pathology Transitional vs integrated	
Gastrointestinal	0.04	White Blood Cell	0.034
Female Genitourinary	0.006	Bone	0.032
Endocrine	0.03		
Central Nervous System	0.049		

Table 3. Subjects with significantly greater lecture hours in general and systemic pathology within transitional curricula. Student paired T-tests were performed comparing lecture hours in traditional to semi-integrated and transitional to integrated curricula in General Pathology and Systemic Pathology subjects. Subjects listed have p≤0.05.

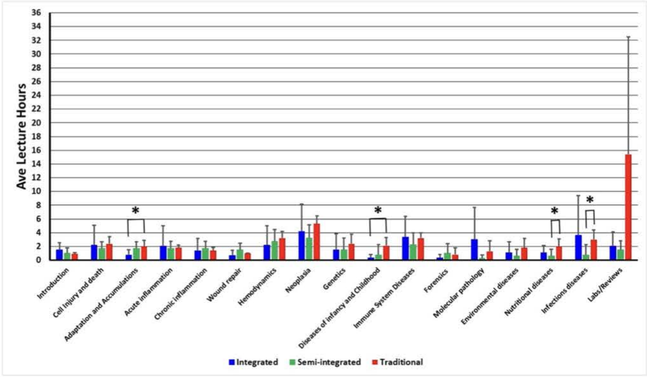

Figure 1. Average lecture hours taught with standard deviations in different General Pathology subjects within integrated (blue), semi-integrated (green), or traditional curricula (red). Student paired T-test - * p≤0.05

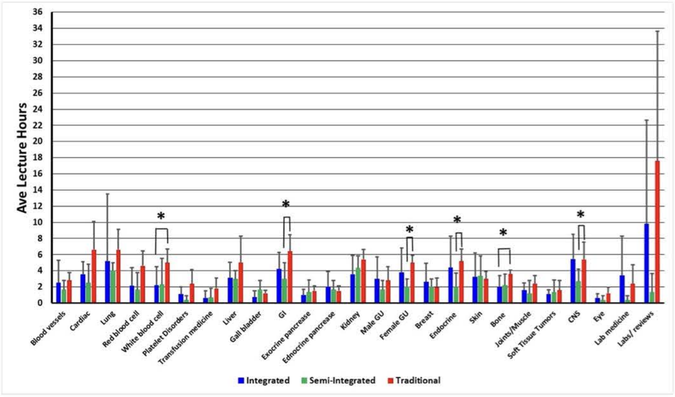

Figure 2. Average lecture hours taught with standard deviations in different Systemic Pathology subjects within integrated (blue), semi-integrated (green), or traditional curricula (red). Student paired T-test - * p≤0.05

Conclusion

1. Lectures are the most preferred method of teaching in TC with significantly greater mean lecture hours in four general pathology subjects and six systemic pathology subjects. Active learning methods such as PBL and TBL are utilized more in the IC than TC.
2. IC also utilized other methods of teaching more than other curricula.
3. These studies are limited by a small sample. Data on active learning in SIC came from a single school and is thus not necessarily representative of larger trends in pathology education. This pilot study warrants further research, in which more schools would be recruited to achieve more statistically significant results.

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