

**Original Article****Evaluation of Undergraduate Medical Curriculum of Bangladesh in Relation to COVID-19 Pandemic and Other Emerging and Re-emerging Diseases**

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**Abstract**

**Background:** Evaluation of curriculum is an integral and essential part of the whole process of curriculum development. The undergraduate medical education curriculum 2012 is now implemented in all the medical colleges of Bangladesh from session 2012-2013.

**Objectives:** The objective of this study was to evaluate the curriculum of undergraduate medical students of Bangladesh in relation to Covid-19 pandemic and other emerging and re-emerging diseases.

**Method:** A descriptive type of cross-sectional study was conducted among the undergraduate medical students and teachers of Mymensingh Medical College during the period of one year from January, 2021 to December, 2021. Data were collected by self-administered questionnaire. Collected data were entered into SPSS Version 26.0 and analyzed accordingly.

**Results:** The study results revealed that majority of students of third year wants that epidemiology (81.8%), signs-symptoms (77.7%) and prevention (82.6%) regarding COVID-19, emerging and re-emerging diseases should be included in their curriculum. Majority of the students of fifth year suggested that signs-symptoms (77.7%), diagnosis (73.8%) and treatment (71.3%) should be included in their curriculum. The maximum teachers suggested that epidemiology (90.0%), signs-symptoms (81.8%) and prevention (63.6%) should be included in third year and epidemiology (77.3%) signs-symptoms (95.5%), diagnosis (77.7%), treatment (90.9%) and prevention (95.5%) should be included in the curriculum of fifth year MBBS.

**Conclusion:** Curriculum evaluation in medical education is a continuous activity. This study evaluates the undergraduate medical curriculum of Bangladesh in relation to COVID-19 and other emerging and re-emerging diseases. This study will help policy maker to develop undergraduate medical curriculum in relation to emerging and re-emerging diseases.

**Key words:** Curriculum, Evaluation, COVID-19, Pandemic, Emerging, Re-emerging

## Introduction

A curriculum is a vision and a road map to meet the academic objectives. The curriculum is a sophisticated blend of educational strategies, course content, learning outcomes, educational experiences, assessments, the educational environments and the individual students learning styles, personal time table and programme of work<sup>1</sup>. Education, as an institution in modern societies, has contributed much to human welfare, including intellectual, social and economic developments as well as the enlargement of knowledge and culture<sup>2</sup>. Medical education has been found to play a vital role in nation building. Hence, the review and formulation of curriculum component is an ongoing process all over the world. The idea of curriculum is hardly new but the way to understand and theorize it has altered over the years and there remains considerable dispute as to its meaning<sup>3</sup>. In the recent years, educational institutions around the world have been increasingly confronted with the challenge of making their curricula relevant to the needs of the time. Medical education in Bangladesh has also experienced many changes and challenges. The government has taken initiatives to bring reform in medical education over the last two decades<sup>4</sup>. Curricula of medical schools need to be regularly updated to reflect the latest advances in basic science and clinical care in order to improve the attitude of medical students towards the newer trends in medical education. As a vital component of undergraduate medical education, the curriculum should empower medical students with a board base of knowledge and practical skills to make them good clinicians. Compared to the traditional, course-centered approach to curriculum there is a need for more modern content and outcome-centered approach<sup>3</sup>. Infectious diseases are some of the most common diagnoses seen in the inpatient and outpatient settings. Therefore, all students must have a strong fundamental understanding of infectious disease to provide high-quality patient care<sup>5</sup>. The objective of this study is to evaluate undergraduate medical curriculum of Bangladesh in relation to COVID-19 pandemic and other emerging and re-emerging diseases. This study

assesses the contents of existing curriculum and taken the opinion regarding inclusion of different emerging and re-emerging diseases in the curriculum from students and teachers of third year and fifth year.

## Methodology

This cross-sectional descriptive type of observational study was conducted in Mymensingh Medical College, Bangladesh. Purposively selected study population was third year and fifth year MBBS students and teachers of Mymensingh Medical College, Bangladesh. The sample size for this study was calculated online by "Raosoft sample size calculator". Total students of third year and fifth year were 461 and total teachers of third year and fifth year were 39. So, total study population were 500 (461 + 39). Considering 5% acceptable margin of error at 95% confidence interval and 50% response distribution from a total study population, calculated minimum total sample size were 218. A total of 201 students and 17 teachers were targeted for data collection. Finally, data were collected from 201 students and 22 teachers of third year and fifth year of Mymensingh Medical College, Bangladesh. The period of study was from January, 2021 to December, 2021. After taking informed verbal consent data were collected by self-administered questionnaire. Collected data were checked for incompleteness and consistency and manage accordingly. Then the data were entered into SPSS Version 26.0 and analyzed accordingly. Confidentiality of data was maintained all through. Ethical clearance was obtained from the Institutional Review Board (IRB) of Mymensingh Medical College

## Results

This descriptive cross-sectional study was conducted among 121 students of third year, 80 students of fifth year and 8 teachers of third year and 14 teachers of fifth year of Mymensingh Medical College, Bangladesh, to evaluate the undergraduate medical curriculum of Bangladesh in relation to COVID-19 pandemic and other emerging and re-emerging diseases.

**Assessment of contents of existing curriculum: -**

**Table I: COVID-19 related topics in the curriculum of third and fifth year MBBS**

Disease	Third year		Fifth year	
	Topic present	Topic absent	Topic present	Topic absent
<b>COVID-19</b>		Epidemiology, Diagnosis, Treatment, Prevention		Epidemiology, Diagnosis, Treatment, Prevention
<b>AIDS</b>	Epidemiology, Control	Diagnosis, Treatment, Prevention	Epidemiology, Control, Diagnosis, Treatment, Prevention	
<b>SARS</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention	
<b>Dengue</b>	Epidemiology, Control	Diagnosis, Treatment, Prevention	Epidemiology, Control, Diagnosis, Treatment, Prevention	
<b>Chikungunya and bird flu</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention	
<b>Swine-flu, Ebola virus disease, Nipah virus disease Zika virus disease and plague</b>		Whole topic absent		Whole topic absent

<b>Hepatitis B and C</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention
<b>Tuberculosis, Malaria, Diphtheria, Cholera, Syphilis and gonorrhoea</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention
<b>Measles</b>	Epidemiology, Complication	Diagnosis, Treatment, Prevention	Epidemiology, Control, Diagnosis, Treatment, Prevention
<b>Pertusis</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention
<b>Anthrax</b>	Epidemiology, Prevention	Diagnosis, Treatment	Epidemiology, Control, Diagnosis, Treatment, Prevention

**Table II: Opinion regarding inclusion of COVID-19 related topics in the curriculum (n=223)**

Disease	Topics suggested to include	Students of third year n (%)	Students of fifth year n (%)	Teachers of third year n (%)	Teachers of fifth year n (%)
COVID -19	Problem statement	64 (52.9)	43 (53.8)	15 (68.2)	21 (95.5)
	Epidemiology	99 (81.8)	38 (47.5)	21 (95.5)	21 (95.5)
	Signs and symptoms	99 (81.8)	62 (77.5)	18 (81.8)	20 (90.9)
	Diagnosis	74 (61.2)	63 (78.8)	14 (63.6)	20 (90.9)
	Treatment	61 (50.4)	59 (73.8)	4 (18.2)	20 (90.9)
	Prognosis	41 (33.9)	36 (45.0)	2 (9.1)	19 (86.4)
	Prevention	102 (84.3)	37 (46.3)	14 (63.6)	22 (100.0)

Regarding COVID-19 students of third year suggested that epidemiology (81.8%), signs-symptoms (81.8%), diagnosis (61.2%) and prevention (84.3%) should be included in their curriculum (Table II) and students of fifth year suggested that signs-symptoms (77.5%), diagnosis (78.8%) and treatment (73.8%) should be included in their curriculum. On the other hand, teachers suggested that problem statement (68.2%), epidemiology (95.5%), signs-symptoms (81.8%), diagnosis (63.6%) and prevention (63.6%) should be included in the curriculum of third year (Table II) and all the topics related to COVID-19 should be included in the curriculum of fifth year MBBS.

**Table III: Opinion regarding inclusion of Dengue and chikunguniya related topics in the curriculum (n=223)**

Disease	Topics suggested to include	Students of third year n (%)	Students of fifth year n (%)	Teachers of third year n (%)	Teachers of fifth year n (%)
Dengue and chikunguniya	Problem statement	79 (65.3)	36(45.0)	14(63.6)	16(72.7)
	Epidemiology	100 (82.6)	38 (47.5)	20 (90.9)	16 (72.7)
	Signs and symptoms	102 (84.3)	68 (85.0)	16 (72.7)	16 (72.7)
	Diagnosis	58 (47.9)	62 (77.5)	10 (45.5)	16 (72.7)
	Treatment	39 (32.2)	49 (61.3)	3 (13.6)	15 (68.2)
	Disease notification	47 (38.8)	11 (13.8)	11 (50.0)	13 (59.1)
	Control measures	88 (72.7)	34 (42.5)	14 (63.6)	16 (72.7)

Regarding Dengue and chikungunya, students of third year suggested that problem statement (65.3%), epidemiology (82.6%), signs-symptoms (84.3%) and control measures (72.7%) and students of fifth year suggested that signs-symptoms (85.0%), diagnosis (77.5%) and treatment (61.3%) should be included in their curriculum. Teachers opined that problem statement (63.6%), epidemiology (90.9%), signs-symptoms (72.7%) and control measures (63.6%) of Dengue and chikungunya should be included in third year curriculum and all the topics related to Dengue and chikungunya should be included in the curriculum of fifth year.

**Table IV: Opinion regarding inclusion of Hepatitis B and C related topics in the curriculum (n=223)**

Disease	Topics suggested to include	Students of third year n (%)	Students of fifth year n (%)	Teachers of third year n (%)	Teachers of fifth year n (%)
<b>Hepatitis B and C</b>	Problem statement	79 (65.3)	35 (43.8)	14 (63.6)	17 (77.3)
	Epidemiology	102 (84.3)	36 (45.0)	19 (86.4)	17 (77.3)
	Signs and symptoms	103 (85.1)	75 (93.8)	16 (72.7)	17 (77.3)
	Diagnosis	61 (50.4)	59 (73.8)	9 (40.9)	16 (72.7)
	Treatment	54 (44.6)	58 (72.6)	2 (9.1)	16 (72.7)
	Prevention	100 (82.6)	40 (50.0)	14 (63.6)	17 (77.3)

Regarding Hepatitis B and C students of third year suggested that problem statement (65.3%), epidemiology (84.3%), signs-symptoms (85.1%), prevention (82.6%) and students of fifth year suggested signs-symptoms (93.8%), diagnosis (73.8%) and treatment (72.6%) should be included in their curriculum. Teachers suggested that problem statement (63.6%), epidemiology (86.4%), signs-symptoms (72.7%) and prevention (63.6%) of Hepatitis B and C should be included in the curriculum of third year and all the topics related to Hepatitis B and C should be included in the curriculum of fifth year.

**Table V: Opinion regarding inclusion of tuberculosis related topics (n=223)**

Disease	Topics suggested to include	Third year students n (%)	Fifth year students n (%)	Teachers' opinion for third year n (%)	Teachers' opinion for fifth year n (%)
<b>Tuberculosis</b>	Problem statement	88 (72.7)	46 (57.5)	17 (77.3)	22 (100.0)
	Epidemiology	102 (84.3)	35 (43.8)	21 (95.5)	21 (95.5)
	Signs and symptoms	94 (77.7)	68 (85.0)	18 (81.8)	20 (90.9)
	Diagnosis	61 (50.4)	63 (78.8)	15 (68.2)	20 (90.9)
	Treatment	49 (40.5)	56 (70.0)	6 (27.3)	22 (100.0)
	Prognosis	25 (20.7)	28 (35.0)	8 (36.4)	20 (90.9)
	Prevention	101 (83.5)	38 (47.5)	15 (68.2)	22 (100.0)
	Rehabilitation	78 (64.5)	32 (40.0)	11 (50.0)	21 (95.5)

Students of third year opined that problem statement (72.7%), epidemiology (84.3%), signs-symptoms (77.7%), prevention (83.5%) and rehabilitation (64.5%) of tuberculosis should be included in their curriculum and regarding tuberculosis students of fifth year opined that signs-symptoms (85.0%), diagnosis (78.8%) and treatment (70.0%) should be included in their curriculum. Regarding tuberculosis teachers suggested that problem statement (77.3%), epidemiology (95.5%), signs-symptoms (81.8%), diagnosis (68.2%) and prevention (68.2%) should be included in the curriculum of third year (V) and teachers suggested that all the topics related to tuberculosis should be included in the curriculum of fifth year MBBS.

**Table VI: Opinion regarding inclusion of diphtheria, pertussis and Measles related topics (n=223)**

Disease	Topics suggested to include	Third year	Fifth year	Teachers'	Teachers'
		students	students	opinion for	opinion for
		n (%)	n (%)	third year	fifth year
				n (%)	n (%)
<b>Diphtheria, pertussis and Measles</b>	Problem statement	69 (57.0)	32 (40.0)	15 (68.2)	11 (50.0)
	Epidemiology	91 (75.2)	48 (60.0)	20 (90.9)	12 (54.5)
	Signs and symptoms	82 (67.8)	70 (87.5)	17 (77.3)	12 (54.5)
	Control of disease	66 (54.5)	39 (48.8)	11 (50.0)	13 (59.1)
	Treatment	18 (14.9)	55 (68.8)	1 (4.5)	11 (50.0)
	Immunization	89 (73.6)	35 (43.8)	15 (68.2)	11 (50.0)

Regarding diphtheria, pertussis and Measles students of third year suggested that epidemiology (75.2%), signs-symptoms (67.8%) and immunization (73.6%) should be included in their curriculum and students of fifth year suggested that epidemiology (60.0%), signs-symptoms (87.5%) and treatment (68.8%) should be included in their curriculum. Teachers opined that problem statement (68.2%), epidemiology (90.9%), signs-symptoms (77.3%) and immunization (68.2%) of diphtheria, pertussis and Measles should be included in the curriculum of third year. On the other hand teachers suggested that epidemiology (54.5%), signs-symptoms (54.5%) and control of diseases (59.1%) of above diseases should be included in the curriculum of fifth year MBBS.

**Table VII: Opinion regarding inclusion of cholera related topics (n=223)**

<b>Disease</b>	<b>Topics suggested to include</b>	<b>Third year students n (%)</b>	<b>Fifth year students n (%)</b>	<b>Teachers' opinion for third year n (%)</b>	<b>Teachers' opinion for fifth year n (%)</b>
<b>Cholera</b>	Problem statement	80 (61.1)	25 (31.3)	17 (77.3)	18 (81.8)
	Epidemiology	99 (81.1)	27 (33.8)	22 (100.0)	19 (86.4)
	Signs and symptoms	87 (71.9)	69 (86.3)	18 (81.1)	20 (90.9)
	Diagnosis	49 (40.5)	57 (71.3)	10 (45.5)	20 (90.9)
	Treatment	44 (36.4)	58 (72.5)	4 (18.2)	20 (90.9)
	Control of cholera	102 (84.3)	30 (37.5)	16 (72.7)	19 (86.4)

Regarding cholera students of third year suggested that problem statement (61.1%), epidemiology (81.1%), signs-symptoms (71.9%), control of cholera (84.3%) should be included in their curriculum and students of fifth year opined that signs-symptoms (86.3%), diagnosis (71.3%) and treatment (72.5%) should be included in their curriculum. Regarding cholera teachers suggested that problem statement (77.3%), epidemiology (100.0%), signs-symptoms (81.8%), control of cholera (72.7%) should be included in the curriculum of third year and all the topics related to Cholera should be included in the curriculum of fifth year MBBS.

### Discussion

This descriptive cross sectional study was conducted in the 3<sup>rd</sup> year and 5<sup>th</sup> year medical students and teachers of Mymensingh Medical College, Mymensingh to find out the existing contents and lacking in the undergraduate medical curriculum.

#### Assessment of existing curriculum

**Curriculum of third year:** COVID-19 is a new emerging disease and its related topics were absent in the curriculum of both third year and fifth year. Epidemiology and control measures of AIDS, Dengue and chikunguniya were present in the curriculum of third year. Epidemiology and prevention of SARS, bird

flu, Hepatitis B and C, tuberculosis, syphilis, gonorrhoea, malaria, diphtheria, pertussis, cholera and anthrax were present in third year MBBS curriculum. Epidemiology, prevention and complication of Measles were present in the curriculum of third year. Swine flu, Ebola virus disease, Nipah virus disease, Zika virus disease and plague related topics were absent in third year curriculum.

**Curriculum of fifth year:** Topics related to AIDS, SARS, Dengue, Hepatitis B and C, tuberculosis, malaria, cholera, syphilis, gonorrhoea and anthrax were present in the curriculum of fifth year. Topics related to chikunguniya, bird flu, swine flu, Ebola virus disease, Nipah virus disease, Zika virus disease and plague were absent in the curriculum of fifth year MBBS.



### **Opinion of students' and teachers' regarding contents of curriculum**

**Opinion of the students of third year:** The study results revealed that students of third year suggested epidemiology (81.8%), signs-symptoms (81.8%) and prevention (84.3%) of COVID-19 should be included in their curriculum. Regarding AIDS students of third year opined that problem statement (62.0%), epidemiology (73.6%), signs-symptoms (79.3%), control of AIDS (75.2%) and problem statement (60.3%), epidemiology (72.7%), signs-symptoms (82.6%) and prevention (85.1%) of SARS should be included in the curriculum of third year. The results also revealed that students want epidemiology, signs-symptoms and prevention regarding SARS, bird flu, swine flu, Hepatitis B and C, Nipah virus disease, Ebola virus disease, Zika virus disease, tuberculosis, malaria, syphilis, gonorrhoea, Measles, plague and anthrax should be included in their curriculum. Most of the students wants epidemiology, signs-symptoms and control measures regarding Dengue, chikunguniya, cholera and pertussis should be included in the curriculum of third year MBBS. Regarding diphtheria students want epidemiology, signs-symptoms and immunization in their curriculum.

**Opinion of the students of fifth year:** Students of fifth year opined that signs-symptoms (77.5%) diagnosis (78.8%) and treatment (73.8%) of COVID-19 should be included in their curriculum. The results also revealed that students want signs-symptoms, diagnosis and treatment regarding SARS, bird flu, swine flu, Hepatitis B and C, Nipah virus disease, Ebola virus disease, Zika virus disease, tuberculosis, malaria, syphilis, gonorrhoea, Measles, AIDS, Dengue, chikunguniya, cholera, diphtheria, plague, pertussis and anthrax should be included in the curriculum of fifth year.

**Teachers' opinion about third year curriculum:** Teachers suggested that problem statement, epidemiology, signs-symptoms, diagnosis and prevention of COVID-19 should be included in the curriculum of third year. Regarding AIDS, Dengue, chikunguniya and cholera teachers suggested epidemiology, signs-symptoms and control measures should be included in the curriculum. Out of SARS, bird flu, swine flu, Hepatitis B and C, syphilis, gonorrhoea and Measles related topics, teachers give their opinion that problem statement, epidemiology, signs-symptoms and prevention should be included in the curriculum of third year MBBS. Teachers opined that problem statement, epidemiology and

signs-symptoms of Nipah virus disease, Ebola virus disease, Zika virus disease, malaria and diphtheria should be included in the curriculum. Teachers give their opinion that problem statement, epidemiology, signs-symptoms, diagnosis and prevention of tuberculosis should be included in the curriculum. Regarding pertussis, plague and anthrax teachers suggested that problem statement, epidemiology and signs-symptoms should be included in the curriculum of third year.

**Teachers' opinion about fifth year curriculum:** Teachers opined that problem statement, epidemiology, signs-symptoms, diagnosis, treatment, prognosis and prevention of COVID-19 should be included in the curriculum of fifth year. The study results revealed that teachers suggested that problem statement, epidemiology, signs-symptoms, diagnosis, treatment and control measures of AIDS, Dengue, chikunguniya, diphtheria, cholera, pertussis should be included in the curriculum. Regarding SARS and Measles teachers suggested that problem statement, epidemiology, signs-symptoms, diagnosis, treatment, complications, prognosis, prevention and problem statement, epidemiology, signs-symptoms, diagnosis, treatment, prognosis and prevention of bird flu, swine flu, Hepatitis B and C, Nipah virus disease, Ebola virus disease, Zika virus disease, malaria, syphilis, gonorrhoea, plague and anthrax should be included in the curriculum of fifth year. Teachers opined that problem statement, epidemiology, signs-symptoms, diagnosis, treatment, prognosis, prevention and rehabilitation of tuberculosis should be included in the curriculum of fifth year MBBS.

**Comparing of the curriculum of Bangladesh with the curriculum of different countries:** As COVID-19 was an new pandemic disease, it was absent in the curriculum of both home and abroad. According to All India Institute of Medical Sciences, New Delhi—epidemiology of malaria, AIDS, tuberculosis, diphtheria, pertussis, Measles, plague and Hepatitis were included in the curriculum of Community medicine and epidemiology, clinical features, diagnosis, treatment and prevention regarding of malaria, AIDS, tuberculosis, diphtheria, pertussis, measles, plague, hepatitis, cholera, dengue were included in the curriculum of Medicine <sup>6</sup>. But in the curriculum of Bangladesh epidemiology, prevention and control measures of diseases were present in the subject of Community Medicine and epidemiology,

signs-symptoms, diagnosis, treatment, prognosis, prevention, complication and control measures of diseases were included in the curriculum of Medicine. According to Pakistan Medical and Dental Council (2011) and higher education commission, Islamabad, prevention and control of diseases were present in the subject of Community Medicine. Topics related to emerging and re-emerging diseases were present in the subject of medicine<sup>7</sup>. According to Medical Curriculum 2015-Faculty of Medicine-University of Jaffna, Sri Lanka, epidemiology, prevention and control of diseases were present in the subject of Community and Family Medicine<sup>8</sup>.

### Conclusion

The study results revealed that COVID-19 related topics were absent in both third year and fifth year curriculum of MBBS. Regarding different emerging and re-emerging disease related topics epidemiology and prevention were present in third year curriculum and problem statement, epidemiology, signs-symptoms, diagnosis, treatment, prevention and control measures were present in the curriculum of fifth year. Swine flu, Ebola virus disease, Nipah virus disease, Zika virus disease and plague related topics were absent in the curriculum of third year MBBS. Topics related to chikunguniya, bird flu, swine flu, Ebola virus disease, Nipah virus disease, Zika virus disease and plague were absent in the curriculum of fifth year. Students of third year opined that epidemiology, signs-symptoms and prevention regarding COVID-19, emerging and re-emerging diseases should be included in their curriculum and students of fifth year opined that signs-symptoms, diagnosis and treatment should be included in their curriculum. The study results also revealed that teachers suggested that epidemiology, signs-symptoms and prevention should be included in third year and epidemiology, signs-symptoms, diagnosis, treatment and prevention should be included in the curriculum of fifth year MBBS. This study will help policy maker to develop undergraduate medical

curriculum in relation to emerging and re-emerging diseases.

### References

1. Anitha CT, Akter K, Mahadev K. An overview of public health education in South Asia: Challenges and opportunities. *Frontiers in Public Health*. 2022; 26(10):909474.
2. Asgar A, Satyanarayana R. An evaluation of faculty development programme on the design and development of self-learning materials for open distance learning. *Asian Association of Open Universities Journal*. 2021;16(1):98-115.
3. Dandekar SP, Maksane SN, McKinley D. A survey validation and analysis of undergraduate medical biochemistry practical curriculum in Maharashtra, India. *Indian Journal of Clinical Biochemistry*. 2012; 27:52-60.
4. Majumder MA. A review of the undergraduate medical curriculum in Bangladesh. *Bangladesh Medical Journal*. 2002; 31(1):47-9.
5. Schwartz BS, Chin-Hong PV. A call to action: infectious diseases medical educators needed. *The Journal of Infectious Diseases*. 2017; 216:600-5.
6. All india institute of Medical Sciences (2005). Syllabus MBBS at the AIIMS. Available at: (<https://www.aiims.edu/aiims/academic/aiims-syllabus/Syllabus%20-%20MBBS>).
7. Curriculum of MBBS (2011). Pakistan Medical and Dental Council and Higher Education Commission. Available at: (<https://www.kims.kmu.edu.pk/sites/default/files/MBBS-Curriculum>).
8. Curriculum of Medical Course (2015). University of Jaffna. Available at: (<http://www.med.jfn.ac.lk/wp-content/uploads/2012/03/Curriculum-2015-1-1>).