

# Evaluation of foundation course program a cross-sectional study among phase 1 Bachelor of Medicine and Bachelor of Surgery students in the state of West Bengal



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Submission: 02-04-2025

Revision: 25-05-2025

Publication: 01-07-2025

## ABSTRACT

**Background:** The foundation course (FC) at the beginning of the Bachelor of Medicine and Bachelor of Surgery (MBBS) curriculum is implemented which will provide a sound foundation for learning in the medical course and later in their professional career. Institutions are encouraged by National Medical Commission to develop their own FC module that addresses the local needs and brings out the Institutional flavor while aligning the whole program to the outcomes identified in the FC booklet. **Aims and Objectives:** To evaluate FC program from Students' perception by quantitative method (Kirkpatrick level 1). **Materials and Methods:** This cross-sectional, observational study was conducted among 250 students of the 2024–2025 batch of phase I MBBS for 6 months after obtaining Institutional Ethics Committee permission in a Government Medical College of West Bengal. A pre-tested and validated questionnaire (Pro forma) in Google Forms was given to the students after provided details about its various items and strict anonymity was maintained. The opinions of students regarding the utility of the sessions were sorted in a Likert scale and responses were compared using the Chi-square test. **Results:** Out of 250 undergraduate students, only 215 voluntarily participated, among them 147 (68.4%) were male and 68 (31.4%) were female. The mean age of the participants was  $19.58 \pm 1.36$  years. Among all the topics taught, the role of a physician, cardiopulmonary resuscitation (CPR), Community orientation module, and Medical ethics were appreciated most. The majority of the students perceived that topic on-skill modules such as basic life support and CPR should be a part of their curriculum since they are must for becoming an Indian medical graduate. Sessions on computer skill, sports, and Yoga showed low student consensus revealing that these areas need to be improved. **Conclusion:** Students appreciated that the course allowed them time to adapt to the academic and Institutional environment and provided a solid foundation to face upcoming challenges while some sessions of FC needs upgradation.

**Key words:** Foundation course; First-year Bachelor of Medicine and Bachelor of Surgery; Program evaluation; Students' perception

### Access this article online

**Website:**

<https://ajmsjournal.info/index.php/AJMS/index>

**DOI:** 10.71152/ajms.v16i7.4552

**E-ISSN:** 2091-0576

**P-ISSN:** 2467-9100

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## INTRODUCTION

Undergraduate medical education in India has undergone a revolutionary change with the introduction of competency-

based medical education (CBME) in 2019. The new graduate medical education regulations intend to prepare a medical graduate to provide health care to the evolving needs of the nation and the world.<sup>1</sup> Since the inception

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of CBME during the last 5 years, continuous feedback and evaluation of the new curriculum are making it more learner-centric, patient-centric, gender-sensitive, outcome-oriented, and environment appropriate. To be a globally relevant physician who serves as the community's initial point of contact, an Indian medical graduate (IMG) needs to have the necessary knowledge, abilities, attitudes, values, and responsiveness.<sup>1</sup> Thus, an IMG must be able to play the role of life-long learner, leader, clinician, communicator, and professional.<sup>2</sup> Medical students come from varied backgrounds and require acclimatization for the transition from school to the professional course. The foundation course (FC) at the beginning of the curriculum serves as a bridge for students into Bachelor of Medicine and Bachelor of Surgery (MBBS) program, gives an overview of the medical college environment, provides an opportunity for peer and faculty interactions and an overall sensitization to various learning methodologies.<sup>3</sup> The FC module is designed to be composed of orientation skills, Sports and extracurricular activities, professionalism, and ethics. Particular emphasis on professional and ethical behavior is placed in the FC-the dovetails in the attitude, ethics, and communication module-one of the flagship program of the MBBS curriculum.<sup>4</sup>

The modules included in the FC are targeted to prepare a learner to study medicine effectively with following objectives.

- a) Introduce learners to: Physician's role in society, alternate health systems, history of medicine, medical ethics, attitudes and professionalism, healthcare delivery system, national health programs and policies, universal precautions, and vaccinations, patient safety and biohazard safety, principles of primary care (general and community-based care)
- b) Promote the learner to develop skills in: Language, Interpersonal relationships, communication, self-directed learning, time management, stress management related to mental health issues, and use of information technology
- c) Educate the learner to deliver: First-aid, Basic/ cardiopulmonary/emergency life support in addition to the above.

Institutions are mandated to develop their own FC module that addresses the local needs and brings out the Institutional flavor while aligning the whole program to the outcomes identified in the FC booklet. The National Medical Commission (NMC) welcomes institutions to share their learning feedback and best practices that enhance the value and the structure of the program in the coming years. A handful of studies are recently being conducted in different states regarding the evaluation of FC in the medical colleges which would be fruitful to analysis

the pros and cons of the program and would help in the refinement of the course.<sup>5-8</sup> In our Institute, we also have developed FC modules according to the latest CBME curriculum. The present study aimed to evaluate the FC program at a Government Medical College and Hospital of West Bengal for Phase 1 MBBS students of the 2024–2025 session using the students' perspective and assess whether the purpose of the course is fulfilled.

### Aims and objectives

- To evaluate foundation course program from Students' perception by quantitative method (Kirkpatrick level 1).
- At level 1, the purpose was to determine the satisfaction of the learners to the course offered.

## MATERIALS AND METHODS

This cross-sectional, observational study was conducted among the 2024–2025 batch of phase I MBBS for a period of 6 months from October 2024 to March 2025 in Nil Ratan Sircar Medical College. After getting Institutional Ethical Committee approval vide memo no NRSMC/IEC/035/2025, the first professional MBBS students of the 2024–2025 batch who voluntarily agreed to participate in the survey were incorporated as study subjects. Pupils unwilling to participate were excluded from the study.

### Study technique

The overall program was coordinated by the office of the Dean and the medical education unit (MEU) of the institution. According to the 2024 CBME guideline for the 2024–2025 academic session, FC program was conducted for a duration of 2 weeks with a total 80 h spread. The whole program was divided into six modules and the time distribution was strictly in accordance with the 2024 CBME curriculum<sup>1</sup> which includes.

1. Orientation module including a history of Indian medicine: 15 h
2. Skills module: 15 h
3. Community orientation module: 5 h
4. Professional development and ethics module (P and E) including mental health: 20 h
5. Enhancement of language and computer skills module including clinicolaboratory communication: 10 h
6. Sports and extra-curricular activities: 15 h.

The faculties were encouraged to use various teaching-learning methods such as lectures, interactive sessions, role plays, small group discussions, interviews, reflective writing, presentations, and debate to meet the session objectives and thereby the attainment of program goals.

- Orientation module: The MEU members under the guidance of the Principal and Dean developed the

orientation module. The students were made aware of the goals, roles of IMG, the new NMC curriculum plan, anti-ragging committee, rules and regulations of the college, evaluation of their learning skills, and student support system. The students were sensitized to the learning strategies, medical ethics, history of medicine, and alternate systems in India

- Skill module: Department of surgery, gynecology, anesthesia, critical care, and microbiology conducted the session on skill module having sessions on first aid, basic life support, communication skills workshop, universal precautions, and waste management workshop
- Community orientation module: Community medicine department organized the sessions in a structured manner having both theory classes and field visits. The students were divided into five batches (n=50) and participated in a field visit to the primary health center. There were lecture classes on national health goals, health policies, and public health problems in India
- Professional development and ethics module (P and E): This module was developed by the Department of Forensic Medicine and Toxicology and Psychiatry having introductory sessions on ethics in medical practice, the value of integrity, honesty, and respect in the medical field, concepts of sympathy and empathy, consequences of ethical and unethical professional behavior
- Enhancement of linguistic, computer skills, sports, and extracurricular activities: These sessions were conducted by faculties of the college and Yoga Teacher, respectively. Extracurricular activities laid down a sound platform to exhibit their talents, made them understand the importance of physical fitness and teamwork, and helped them to interact among themselves.

### Study tool

Feedback regarding the FC was calculated using a questionnaire. The questionnaire was checked for internal consistency using Cronbach's Alpha which was found to be 0.891. A pre-tested and validated questionnaire (Proforma) in Google Forms was given to the students after providing details about its various items and strict anonymity was maintained. The students were explained that participation/non-participation in the study will in no way hamper their academic rights. Some items of questionnaire were in Likert Scale with the responses "Strongly disagree", "Disagree", "Neither agree nor disagree", "agree" and "strongly agree" and with values ranging from 1 to 5 points. The responses of the students were extrapolated and decoded using Microsoft Excel 2010 and appropriate statistical calculations were done. The Questionnaire consisted of

39 items. It had four sections, section A consisted of 11 questions on socio-demographic variables. Section B had next 12 questions on feedback regarding sessions on FC. Each question was a statement-based question rated on five-point Likert scale. Section C contained six questions regarding the quality of FC based on five-point Likert scale. Section D consisted of ten questions inviting suggestions to improve the course. This section contained both closed and open-ended questions.

### Statistical analysis

The quantitative data were analyzed using SPSS version 21. A consensus measure was expressed in percentage obtained for each of the items. Values at the upper end of the range indicate more "agreement" than values at the lower range. A value closer to 1.0 or 100% has less dispersion around the weighted mean value and indicates greater agreement.<sup>9</sup> Low consensus values were identified through high dispersion around the mean value. Considering the high rating for most of the sessions 70% will effect good consensus and below 70% as to reflect poor consensus.

## RESULTS

Out of 250 undergraduate students, only 215 voluntarily participated in this survey. Among these students, 147 (68.4%) were male and 68 (31.4%) were female. The mean age of the participants was  $19.58 \pm 1.36$  years. Out of the 215 students, 157 (59.1%) were from Urban locality. About 118 participants were hostel boarders. Among the 215 survey participants, about 196 (90.7%) were residents of the State of West Bengal. This finding corroborates with the similar finding of knowledge regarding local language. About 91.7% of the survey participants opined that they are accustomed to speaking the local language fluently. The opinion of the students regarding the utility of the sessions were sorted in the Likert scale and responses were compared using the Chi-square test as shown in Table 1. The consensus opinion was recorded using a formula designed by Tastle and Weirman in Table 2.<sup>10</sup>

## DISCUSSION

"Foundation Course" at the beginning of the MBBS course is to orient and sensitize the student to the various identified areas. It provided an overview of the MBBS curriculum and the role of medical professionals in society. Key topics included in FC were medical ethics, time management, stress management, as well as communication skills essential for doctor-patient interactions. Interactive classes such as cardio-pulmonary resuscitation (CPR) demonstrations, first aid training, and field visits to health centers and rural clinics offered practical insights and skills. Building of good

**Table 1: The utility of the topics taught in foundation course (n=215)**

Opinion of study participants regarding the utility of session									
Sl.no	Topic of session	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Consensus score%	P-value
1.	Role of physician	95 (44.2)	115 (53.4)	4 (1.9)	1 (0.5)	0	4.41±0.55	79	<0.001
2.	History of Indian medicine	50 (23.2)	104 (48.4)	47 (21.9)	10 (4.6)	4 (1.9)	3.86±0.88	71	<0.001
3.	Medical ethics	135 (62.8)	72 (33.5)	8 (3.7)	0	0	4.59±0.56	79	<0.001
4.	Professional development including communication skill	93 (43.3)	105 (48.8)	17 (7.9)	0	0	4.35±0.62	77	<0.001
5.	Health care delivery: Community orientation	94 (43.7)	85 (39.5)	31 (14.4)	2 (0.9)	3 (1.3)	4.23±0.83	71	<0.001
6.	National health policies and vaccination	50 (23.2)	107 (49.7)	49 (22.8)	7 (3.3)	2 (0.9)	3.91±0.81	74	<0.001
7.	Language proficiency	57 (26.5)	104 (48.3)	35 (16.3)	15 (7)	4 (1.9)	3.90±0.93	70	<0.001
8.	First aid, basics and advance life support	88 (40.9)	105 (48.9)	16 (7.4)	6 (2.8)	0	4.27±0.72	76	<0.001
9.	Mental health, time, and stress management	79 (36.7)	113 (52.6)	16 (7.4)	7 (3.3)	0	4.23±0.72	76	<0.001
10.	Biohazard and biomedical waste management	73 (34)	106 (49.3)	30 (14)	5 (2.3)	1 (0.5)	4.13±0.77	75	<0.001
11.	Computer skill and information technology	28 (13)	59 (27.4)	80 (37.3)	30 (13.9)	18 (8.4)	3.23±1.1	60	<0.001
12.	Sports and yoga	45 (20.9)	78 (36.3)	70 (32.6)	14 (6.5)	8 (3.7)	3.64±1.0	63	<0.001

P<0.05 is considered to be statistically significant. Figure in parenthesis suggest percent distribution

**Table 2: Students perception about quality of foundation course (n=215)**

S. No.	Attributes of foundation course	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Consensus%
1.	The defined objectives of foundation course were fulfilled	44 (20.5)	128 (59.5)	38 (17.6)	4 (1.9)	1 (0.5)	3.97	80.8
2.	The classes were conducted with effective time management and were adherent to the NMC-defined norms	83 (38.6)	114 (53)	16 (7.4)	1 (0.5)	1 (0.5)	4.28	77
3.	The sessions were interactive	53 (24.7)	124 (57.6)	34 (15.8)	4 (1.9)	-	4.05	80.4
4.	The audio-visual aids were of good quality and used judiciously	64 (29.8)	112 (52.1)	36 (16.7)	3 (1.4)	-	4.1	77.8
5.	The infrastructure of the institute is sufficient to conduct foundation course	117 (54.4)	87 (40.5)	11 (5.1)	-	-	4.49	78.2
6.	The academic ambience of the institute is adequate enough to fulfil the objectives of foundation course	100 (46.5)	103 (47.9)	12 (5.6)	-	-	4.40	78.3

Figure in parenthesis suggest percent distribution, \*NMC: National Medical Commission

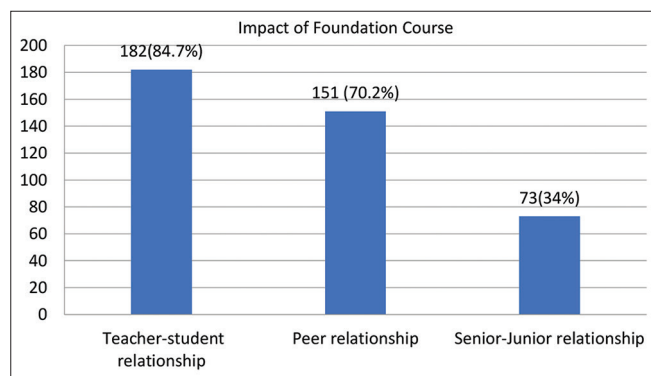
teacher–student relationship was highlighted as a crucial point. The course encouraged peer interaction and team-building activities, helping students to settle into the medical college environment and develop friendships.

In the cross-sectional study on FC program evaluation in our Institution, students' perception regarding FC program was assessed by questionnaire. Among all the topics taught, Role of a physician, CPR, Community orientation module and medical ethics were mostly appreciated. Study conducted at Gujarat by Raaid Shaikh yielded similar type of results where students perceived that topic on skill module like Basic Life Support (BLS) and CPR should

be a part of their curriculum since they are must for becoming IMG<sup>7,11</sup> (Table 1). Sessions on Professional development and Communication skill were perceived as very useful by 92% of students. Communication skills such as demonstration of ability to communicate with patient and families clearly and empathetically, breaking bad news to patients, awareness of barriers of communication and appropriate ways to respond was well appreciated. Few previous studies showed similar results where most of the students were interested to learn communication skills for building effective doctor patient relationship<sup>12-15</sup> (Table 1).

In our study sessions on mental health, stress and time





**Figure 1:** Impact on interpersonal relationship

management shows a good students' agreement. About 89% students thought it was useful while similar study conducted in Jammu and Kashmir revealed only 39% and 45% students found the sessions to be useful<sup>6</sup> (Table 1) Sessions on Health care delivery system, National health Policies, and Vaccination were also found useful from students' perspective. However, sessions on Computer skill, language proficiency and Extracurricular activity didn't get good response. The result matched to some extent with previous studies where Computer skill and extracurricular activity were not well perceived.<sup>7,8</sup> This poor rating might be due to scarcity of permanent trainers for extracurricular activity in our Institution. Sports teacher from other Institute was invited to take one single session indicating further improvement is needed in this field.

Regarding the quality of FC program such as institutional infrastructure, audio–visual aids, time boundness, interactive classes, and adherence to NMC guidelines, all reflected good consensus (Table 2).

Regarding impact and suggestion to improve FC, about 79% of students had a consensus opinion that they liked the FC. 52.6% of students opined that the FC duration should be <2 weeks. On the contrary, 39% opined that the duration of FC should be curtailed down to 1 week. 84% perceived that FC had a good impact on teacher–student relationship whereas 70% of students felt it was good in building peer relations. Only 34% thought FC could improve senior–junior relation (Figure 1). The study conducted in the Medical College of Eastern India by Datta *et al.*, stated that FC successfully improved participants' interpersonal relationship status (67.01%).<sup>5</sup> So, FC will help to build a strong foundation among novice First-year medical students, thereby enabling them to become IMG.<sup>16</sup>

## CONCLUSIONS

The FC at the study institute was useful in developing professional and communication skills, basic and advanced

life support, stress and time management, and interpersonal relationships. About 80.8% of students agreed that FC fulfilled its desired objectives and 78.3% perceived that the ambience and environment of the institute were adequate to fulfil the objectives of FC. Regarding the infrastructure of the institute to conduct FC, audio–visual aids, and interaction during classes had a good consensus. Among all the sessions computer skill and information technology, (60%) sports, and Yoga (63%) showed low student consensus revealing that these areas need to be improved. Moreover, with the advancement and rampant use of technical gadgets such as Android phones, and computer skills the majority of the students have a basic knowledge of computer skill. The Internet availability and performance pressure have curtailed down the liking for sports etc. Moreover, students valued that the course offered them the opportunity to adjust to the academic and social pressures of MBBS while establishing a strong base to tackle future challenges.

## Limitations of the study

The perceptions of faculties/teachers regarding the FC should have been incorporated in the study. Perceptions and knowledge gain of the students before and after the FC should be compared for proper evaluation of the program.

## ACKNOWLEDGMENT

We acknowledge Principal, Dean, Co-ordinator of MEU, all Resource faculties of the Institution for supporting us throughout the Program. We acknowledge all office staff, laboratory personnel, Yoga teacher, and last but not most importantly our beloved students of the 2024–2025 session who actively participated in this study.

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#### Authors' Contributions:

**PD**- Manuscript preparation and interpretation of results; **SC**- Statistical analysis, interpretation of results and entire manuscript preparation; **SM**- Concept, interpretation and correction of manuscript; **SSD**- Concept and correction of manuscript

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**Source of Support:** Nil, **Conflicts of Interest:** None declared.