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Community Medicine Clerkship amidst COVID-19 Pandemic: Re-designing, Implementation, and Evaluation

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Abstract

Clerkship on primary care and family medicine is multi-elemental and was very challenging during the COVID-19 pandemic. Some medical students postponed their graduation because the clerkship at the health center could not be carried out in a pandemic situation. This article aims to describe the community medicine clerkship (CMC) module and its implementation amidst the COVID-19 pandemic. This module was delivered by online and offline activities from 10th August to 13th September 2020. A total of forty students, twelve faculty mentors, and fifteen Primary Health Care (PHC) preceptors from ten PHCs in the Tangerang District, Indonesia were involved. Students could carry out activities and fulfil assignments given in the midst of a pandemic with a re-designing of the CMC module. The one-sample t-tests were employed to compare the difference between the study values and the values before the COVID-19 pandemic. The study showed that the scores of students participating in CMC module during the COVID-19 pandemic were significantly different from the scores before the pandemic in terms of both individual and group scores. The findings of the study clearly indicated that all clinical clerkship modules must be redesigned to suit the current conditions. Modifications and variations of various learning methods, guidance techniques, monitoring and coordination are all factors that must be considered in implementing changes to these modules.

Keywords: ***community-based education; community clinical clerkship; COVID-19 pandemic; implementation and evaluation; re-designing module***

Introduction

The COVID-19 pandemic has been immensely powerful. It should be admitted that medical education is facing a huge impact due to this pandemic. Some learning processes were postponed or delivered by

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online learning. The group of medical students who felt the greatest impact during the pandemic were in the clinical clerkship stage. This included all students who take clerkship in hospitals or primary health care (PHC) settings (Ferrel & Ryan, 2020; Kim et al., 2020). The term clinical clerkship refers to the rotations in the last two years of medical school in various subfields of medicine (Figure 1). In addition, the Faculty of Medicine at the Universitas Islam Negeri Syarif Hidayatullah (FMUINSH), saw a large number of students, who were supposed to graduate in June 2020, postpone graduation due to this pandemic. This included students who only had to complete one or two clinical clerkship(s) with a duration of around four to ten weeks.

Figure 1:

Curriculum Map of Medical School of UIN Syarif Hidayatullah

CURRICULUM MAP
MEDICAL SCHOOL - UIN SYARIF HIDAYATULLAH

Year	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1st Year	FOUNDATION OF HUMAN BIOLOGY						INTEGRATED ORGAN-BASED PATHOLOGY SYSTEM					
	Molecular Biology, Inheritance		Homeostasis 1		Homeostasis 2		Disease & Defense		Respiratory system		Cardiovascular system	
	Integrated Module: Language, Bioethics, Moslem Doctor, Research											
2nd Year	INTEGRATED ORGAN-BASED PATHOLOGY SYSTEM											
	Brain & Behaviour		Musculoskeletal system		Special Senses		Gaastrointestinal System		Nutrition & Metabolisme		Renal, Fluid & Electrolyt System	
	Integrated Module: Bioethics, Moslem Doctor, Research											
3rd Year	INTEGRATED ORGAN-BASED PATHOLOGY SYSTEM											
	Musculoskeletal System		Growth & Deelopment		Dermato Venerology		Hematoimmune System		Specialis sense System		Emergency	
	Integrated Module: Bioethics, Moslem Doctor, Research											
4th Year	Family Medicine		EBM	(1) Clinical Reasoning	ROTATION OF CLINICAL CLERKSHIP							
	Integrated Module: Bioethics, Moslem Doctor											
5th Year	ROTATION OF CLINICAL CLERKSHIP										CMC MODULE	
	Integrated Module: Bioethics, Moslem Doctor											
6th Year	ROTATION OF CLINICAL CLERKSHIP				CMC MODULE		(2) Clinical Resoning					
	Integrated Module: Bioethics, Moslem Doctor											

Rotation: surgery, obstetric, pediatric, internal medicine, eye, ear-nose-throat, dermatology, emergency, radiology, psychiatric, neurology, geriatric, cardiology, pulmonology, forensic, anaesthesia, elective module, **community medicine (CMC module)**

One of the clinical clerkships with numerous students (about 120 out of a total of 210 students) is the community medicine clerkship (CMC, we called as “IKK Klinik”). This refers to the medical education curriculum in Indonesia which aims to produce primary care doctors. The CMC module is performed after the medical students finished at least four major modules (such as clerkship at department of surgery, internal medicine, child health, and obstetrics) because students will practice “real work” in primary care service during this clerkship (Indonesia Medical Council, 2012). The "real work" refers to routine activities at the Health Center, which includes medical services and health prevention programs, both inside and outside the building. Students who only had one or two clerkship(s) left to graduate as a doctor were postponed because the clerkship(s) needed to be carried out full time in the hospital.During the pandemic, several teaching hospitals were designated by the Indonesian government as referral hospitals for COVID-19 patients, posing a high risk if the students were to run clerkships at those hospitals without careful preparation and full supervision (Rickman et al., 2020).

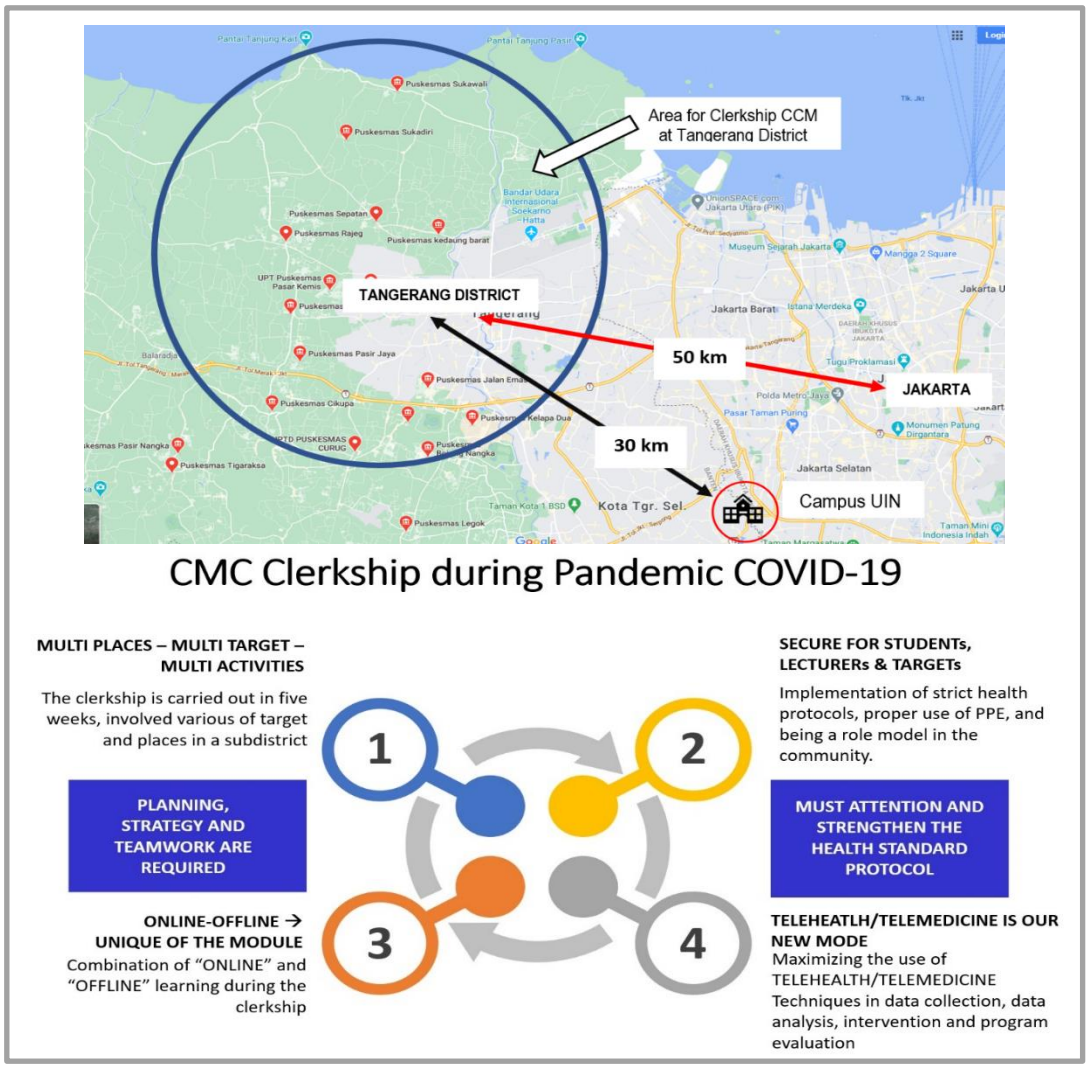
We could not predict when this pandemic would end. Taking into account the various ongoing conditions due to the COVID-19 pandemic and inputs from stakeholders, the FMUINSH planned to implement a

rotation of clerkship in hospital or PHC. It was an adapted strategy that aimed to accelerate graduation for students who only needed one or two additional clerkships, especially in CMC. Accordingly, the FMUINSH prepared various strategies such as modifying existing modules and activities in line with changing guidelines issued throughout the pandemic. It is known that the CMC is a clinical clerkship that involves multiple elements, so it required careful planning (Dory et al., 2014; Bernstein et al., 2016).

The CMC module is a model of community-based medical education (CBME) (Iglar et al., 2013) and was developed from the application of family medicine, rural, and occupational medicine approaches that are carried out by graduates in PHC centers in Indonesia (Schneider et al., 2019; Campbell et al., 2020). CMC is a clinical clerkship that is held for 5 weeks in the fifth or sixth year of medical education in Indonesia (Figure 1). This article aims to describe the CMC module, and how the implementation and evaluation were carried out in the clinical phase for medical students at FMUINSH, Indonesia. This module is the first clerkship module after six months of the implementation of social restrictions during the COVID-19 pandemic.

Figure 2.

Location of activities and clinical clerkship models during the pandemic COVID-19



Method

Module of Community Medicine Clerkship (CMC)

The CMC module during the pandemic was an adaptation of the previous CMC module, which ran for 5 weeks and was held in the Tangerang district (Figure 2). This adjustment included the phases of preparation, implementation, and student assessment (see Table 1). In the preparation phase, the Faculty imposed mandatory COVID-19 screening provisions on all students who were to complete the clerkship. In the implementation phase, there were several changes, namely online debriefing lectures for 5 days (previously only two days offline), clinical practice in the field only 9 days (previously 15 effective days) and discussions which were held online. Supervisors from the health center carried out student assessment of clinical practice activities in the field, while other assessments such as portfolio exams, assignments, and seminars were carried out online. During the module implementation the numbers involved included forty students, twenty supervisors from ten health centers, eight tutors for group discussions, and ten resource people who attended research report seminars or case discussions.

Table 1.

Comparison of CMC learning activities before and during the pandemic

Time	Activities	Before pandemic	During Pandemic
Preparation: (2 weeks before the clerkship)	Screening of COVID-19 by rapid test	None	Facilitated by Faculty (40 students are non-reactive)
First week (Didactic session)	Didactic session	2 days – in classroom	5 days – online session
	Topics:	primary health services, evaluation program, community diagnosis	Add new topic: Excellent programs of Tangerang District for health; training for infection prevention and control of COVID-19.
	Lecturer	Faculty staff	Involved: faculty staff, health centers staff, and staff of Tangerang District Health Office
2nd – 4th weeks (Practice in real setting)	Practice in community		
	- Clerkship at University Clinic	2 days	None
	- Clerkship at PHC supervised by doctor and other professions	15 days in 3 weeks (120 hours)	9 days in 3 weeks (54 hours) Online discussion session with preceptor from PHC
	- Tutorial and groups discussion with the tutor	Each Friday in 3 weeks (24 hours) – in class	Each Friday in 2 weeks (16 hours) – online session
	- Health education program at Islamic boarding school (Pesantren)	Visiting the Islamic boarding school to conduct health intervention	None
5th week (Analyzing, creating and reflecting)	Seminar / presentation group work	2 days (14 hours) – in a classroom	2 days (14 hours) – online session
	Seminar (students, tutor from Faculty and PHCs)	2 days (6 hours) – in a classroom	2 days (6 hours) – online session
	Portfolio examination	one student one tutor, face to face (2 hours)	one student one tutor, online session (3 to 4 hours)

Learning Outcome and Competencies

In general, the aim of this module is to achieve both the competency of general practitioners as stated in the Standard of Competence for Indonesia Medical Doctor (SKDI, *Standar Kompetensi Dokter*

Indonesia) and the institution competency (Indonesia Medical Council, 2012). This module also provides training such as studying skills, community diagnosis, as well as in health management and health services. Patient management is carried out in an integrated manner with other related fields of medical science. Therefore, at this stage, student competency evaluation can be carried out comprehensively (Iglar et al., 2013; Schneider et al., 2019).

Learning activities

The learning activities in this module are divided into three parts (Table 1). Bloom's theory is a theoretical concept that simplifies developing learning objectives, covering the cognitive, affective and psychomotor domains (Bloom, 1956; Krathwohl, 2002; Cannon & Feinstein, 2005). This theory is widely used in the higher education curriculum in Indonesia (Junaidi, 2020). This module also applies several other learning theories such as constructivism theory (such as problem solving discussions with tutors), social learning theory (such as the application of learning activities in practical fields, interaction with people, behavior and the environment) and the concept of adult learning (self-directed learning) (Huggett and Jeffries, 2014; Falchikov, 2001).

1. Didactic session (Bloom levels 1&2)

Bloom levels 1 and 2 (Bloom, 1956) refer to the students ability to identify, list, explain, and interpret existing information and data (Krathwohl, 2002). Briefings are given in the first week of CMC module and constitute refreshment from what has been delivered in the preclinical phase with the exception of the topic about the excellence program of Tangerang District and telemedicine implementation. Before the COVID-19 pandemic, in-class briefings lasted for 2 days. Since and during the COVID-19 pandemic, briefings are given over 5 days (for 30 hours) through online lectures and discussion.

The topic of patient management was directed to the application of the principles of family medicine which was comprehensive and continuous. In addition, students were trained and directed to think creatively and strategically in managing patients during the pandemic; for example, conducting safe home visits, online patient management, and developing creative media for health promotion and disease prevention.

The topics about public health services included activities and programs in PHC, implementation of health program evaluation in PHC, community diagnosis and intervention, and fostering community-based health efforts (such as Posyandu, Posbindu) and school health efforts (such as health promotion activities at public, private, and Islamic boarding schools). Posyandu (the community health service concerned with child-bearing aged women and children under five) and Posbindu (the community health service responsible for the prevention of non-communicable diseases) are forums for fostering community health status by the PHC. Students were expected to have the opportunity to be able to observe and actively participate (if possible) in both of these types of community empowerment in the health sectors.

2. Practice in real setting (Bloom level 3)

Bloom level 3 (domain of application) (Bloom, 1956) is the ability to apply concepts or information into new situations in the form concrete and measurable activities (Krathwohl, 2002). The apprenticeship practice in this module was carried out in communities and Puskesmas (PHC). Students were guided by preceptors from various professional backgrounds who provided guidance to the students both inside and outside the PHC. Student activities during in PHC included screening patients in triage, examining patients at the medical center, individual and group counseling, and COVID-19 screening. In addition, the experience included discussions with preceptors about PHC (programs, management, and activities), students' daily activities and progress reports on assignments. Student activities outside the building included home visits, counseling on COVID-19 prevention in the community, and visits to public schools and boarding schools.

3. Analyzing, creating and reflecting (Bloom levels 4 to 6)

The Bloom levels 4 to 6 (Bloom, 1956) show the learner performance in analyzing, evaluating and producing the new product such as ideas, plans, scheme, or other products (Krathwohl, 2002 Cannon & Feinstein, 2005). To evaluate student activities and student achievement in the field, online discussions were held every Friday with tutors from the university campus. The discussion topics with the facilitators included reports on the progress of patient coaching with home visits, progress of program evaluation analysis, and community diagnoses.

Preparation: Faculty Development Program

Provision of a Faculty development program was very important in implementing CBME because the roles of lecturers and supervisors shift from a teacher-centered model to a student-centered and interactive learning approach (Bansal et al., 2017; Walsh et al., 2018). There are still many field supervisors who do not yet understand about their roles as preceptors, who were not only informers but also mentors, coaches, or supervisors (Harden and Crosby, 2000). In addition, there were many parties or stakeholders involved in this learning activity, who are not only health professionals but also members of the community, so their involvement in learning also suggested the need for preparation (Welch and Plaxton-Moore, 2017).

Workshop for students and faculty staff

Preparation for students was carried out one month before activities began. In the first stage, the faculty conducted online meetings for all students who met the requirements. This meeting aimed to provide an explanation of the implementation of the CMC module to students who were to take part in the activity. In order to participate in this activity, students had to obtain permission from their parents, complete the health screening, and comply with health protocols in accordance with existing regulations. In the second stage, the faculty conducted a rapid-test screening for students who were willing to take part in this activity. The faculty organized a one-day workshop for supervisors, tutors and module teams who were involved in the CMC. The workshop was held two weeks before the activity started. The workshop program covered (a) the duties and roles as supervisors, tutors and resource persons, (b) online and offline discussion and mentoring techniques, (c) module activity schedules, (d) guidance on completing logbooks and portfolios and (e) techniques for student assessment.

Workshop for staff of Tangerang District Health Office and preceptors

Online coordination was carried out between the faculty and the Tangerang District Health Office to prepare for this activity. Topics of particular concern were areas with COVID-19 cases at that time, the availability of housing for students, preparation of the PHC to become a learning site, and planning for implementing screening before and after activities with rapid-testing. There were limitations in carrying out PCR swab examinations at that time, so it was decided to conduct screening by the rapid-test. Faculty members, Tangerang District Health Office and PHC staff prepared daily student monitoring (by measuring temperature, attendance with photos, and online reports), providing PPE, and other learning support facilities.

Assignment, Assessment, and Evaluation Program

Students' Assignment

In this module activity, students were given several assignments, both individual and group assignments as in Table 2, and some adjustments were performed during the pandemic period. Assignments that had been omitted were clinical skills assessment using mini-Cex, services in the pharmacy ward, midwifery ward and child immunization, as well as community empowerment activities. Mini-CEX is an assessment by the field supervisor after students interact with patients for 10 - 20 minutes (Norcini et al., 2003; Liao et al., 2013). To enable supervisors/tutors to monitor and evaluate student competency achievements, the

CMC module team set targets for students to fulfil in terms of types of individuals/patients, families and community problems.

Table 2.

Individual and group assignments during clerkship

Assignment	Type of assignment	Before pandemic	During pandemic
1. Examination of patients at PHC	Individual	5 patients/ day (for 3 weeks)	Only 2 patient / day (for 2 weeks)
2. Home visit patient	Individual	At least 2 patients	Only 2 patients
3. Evaluation by using Mini-Cex	Individual	2 patients	***None***
4. Doing service in pharmacy ward, obstetric room, child immunization and medical record room	Individual	At least once during clerkship	***None***
5. Visit to community empowerment (as like Integrated Health Care)	Group	At least once visiting community-based empowerment program	***None***
6. Conducting PHC program evaluation	Group	One group, one program	One group, one program
7. Implementation of community diagnosis	Group	One group, one program	One group, one program
8. Visit to closed community such as visiting Islamic boarding school for health promotion activities	Group	Each group conducted intervention program at Islamic boarding school	Merge with activity of community diagnosis

The module team developed several instruments or guides to help students and supervisors carry out their duties or their respective roles. For individual assignments, they covered patient data collection using medical records, documentation of family files, group final report, students' logbooks and portfolios. A portfolio was a collection of reports containing (1) activities that have been carried out by the students both patient management and community activities in the form of comprehensive problem-solving discussions and (2) students' written reflections. The group assignments consisted of reports of both community diagnosis and program evaluation. The activity of evaluating health programs at the site was a modification of the Donabedian model (Haj et al., 2013; Botma & Labuschagne, 2019) and the WHO framework of monitoring and evaluation of health system strengthening (World Health Organization, 2009). Meanwhile, community diagnostic activities adopted the Bennett principle with adjustments to several topics according to current developments (Bennett, 1979; Bjärås, 1993). Given the wide variety of activities and health cases encountered by students during community activities, in relation to the achievement of their competencies, students were given a logbook containing assignments that had to be completed during the clinical community clerkship. This logbook was also very important for field supervisors and faculty for routine assessments during field activities.

Student's assessment and clerkship evaluation

Several evaluation methods were implemented to assess various aspects of competencies among students including aspects of knowledge, attitudes, and behavior. The combination of various assessments was applied for the purpose of assessing students from various aspects combining cognitive, practical, and analytical abilities (Dory et al., 2014). The learning evaluation modalities are shown in detail in Table 3. In general, the assessment was divided in two major parts, namely formative and summative assessments. Formative assessment covered the assessments by preceptors conducted when the students were in the field, and the facilitators during the weekly discussions, individual assignments, and submission of progress reports. Finally, summative assessment included oral examinations or Student Oral Case

Analysis (SOCA), group assignment reports, and portfolio reports. Table 3 shows that the assessment from preceptors at the university clinic was not performed in this module during the pandemic.

Table 3.

Comparisons of assessment types during CMC before and during COVID-19 pandemic

Type of assessment	Target assessment	Before Pandemic		During Pandemic	
		Frequency	**Method**	**Frequency**	**Method**
Formative assessment					
1. Assessment from preceptors at PHC	Individual	Yes	Clinical site at PHC	Yes	Clinical site at PHC
2. Assessment from preceptors at university clinic	Individual	Yes	Clinical site (at clinic)	***None***	-
3. Assessment from tutor during group discussion	Individual	Yes, 3 times	In classroom	Yes, twice	online
Summative assessment					
4. Group assessment (community diagnosis and evaluation program) by tutor	Group	Yes, 3 times	In classroom	Yes, twice	online
5. Assessment from seminars activities (by tutor, preceptors)	Group	Once, last week of clerkship	In classroom	Once, last week of clerkship	online
6. Portfolio assessment (case exam – patient and program)	Individual	Once, last week of clerkship	In classroom	Once, last week of clerkship	online

Data collection and analysis, ethic approval

The evaluation of this clerkship was carried out using two approaches. Firstly, by comparing the results of student assessments during this clerkship with the secondary data of the clerkship before the pandemic (2019) and primary data of the clerkship during the pandemic (2020). This was then analyzed using the independent t-test. Secondly, the student's self-assessment toward competencies of community medicine clerkship through the completion of an online questionnaire which was analyzed descriptively. This self-assessment was first used during the pandemic CMC clerkship period and involved the use of a Likert scale (1= very poor and 10=competence). This research was approved by the University Ethics Committee.

Results

CMC Clerkship Implementation

This module was delivered by online and offline activities from 10th August to 13th September, 2020. The students worked at community and health centers in Tangerang, Banten, including ten sub-districts (Pakuhaji, Kedaung Barat, Sukawali, Pasirnangka, Tigaraksa, Cisoka, Sukamulya, Jayanti, Salembaran Jaya, and Pasar Kemis sub-districts). These designated areas were located about 50 to 60 km from Jakarta and the rural areas bordering the Java Sea. Regarding the COVID-19 pandemic, this area had been declared as a green zone (at that time), meaning there were no new cases of Coronavirus in all sub-districts. Forty medical students attended the CMC clerkship and were divided into 10 small groups who worked at each designated primary health center (PHC) in each sub-district.

The CMC clerkship experience lasted for 25 days over five weeks, including working in PHC and community for twelve days. A total of 40 students, 15 field supervisors from 10 PHCs, and 12 mentors from the faculty were involved in this learning. Students did not work at the PHC on the fourth week due to the increasing COVID-19 cases in Jakarta area, since their place of work bordered DKI Jakarta (Figure 2). The results of a five-week clerkship in the community are shown as follows.

Individual Task: Patient Management and Home Visits

During this clerkship, students conducted patient management and home visits to as many as eighty patients who were scattered in 10 subdistricts. Each student reported on their patients and discussed the cases with their preceptors to determine which patients would be offered a home visit, comprehensive care, and family intervention. The preceptors and the faculty had set some criteria for patient management and home visits conducted by students during this pandemic. The most common conditions that were analyzed using the family medicine approach were tuberculosis, cardiovascular disease (hypertension and heart failure) and endocrine disease (diabetic mellitus and lipidemia). Students drafted reports in three areas documenting medical records (about patient information), family files (about family information), and portfolio (analysis and discussion of patient and their family).

Group Work: Evaluation Program PHC and Community Diagnosis

Each group of students in each PHC carried out the evaluation of the health program and community diagnosis. The activity of the program evaluation in the health sector focused on areas such as health promotion, public health education, prevention of infectious diseases, epidemiological surveillance, health care services (outpatient care), maternal and child health, efforts to improve nutrition, and environmental health. Students and preceptors from each PHC held discussions to select a health program and year of implementation of the program to be evaluated. On the other hand, in the community diagnosis activity, students and faculty tutors chose the topics and population that became the target of this activity.

Results of Multi-Assessment and Student' Self-Assessment

Student assessment included various aspects (knowledge, behavior) that were carried out during the activity (formative assessment) and in the last week of the learning activities (summative assessment). Formative assessment consists of evaluation from health center preceptor (Puskesmas staffs), tutor (UIN staff), and group work assignments. Meanwhile, summative assessment focused on the portfolio report and group report and presentation. Table 4 showed the result of each assessment during the clerkship.

Assessment of student performance during clerkship was carried out in several ways via individual and group assessment. Table 4 shows that the mean scores for each type of assessment were mostly higher in the clerkship before the pandemic (2019) compared to the clerkship during the pandemic (2020), with the exception of the mean scores on assessments of group work and portfolio. Overall, it shows that the mean of total score before the pandemic (mean=79.79) is higher than during the pandemic (mean=76.77) and significantly different ($p<0.005$).

Table 4.

Mean comparison of student scores at CMC clerkship before (n=50) and during (n=45) the COVID-19 pandemic

Type of assessment	Situation				t	df	P-value
	Before Pandemic(¥) (n=55)		During Pandemic (n=40)				
	Mean	SD	Mean	SD			
Formative assessment							
- Group discussion assessment (by tutors)	77.58	5.105	**76.28**	**6.919**	1.054	93	0.295
- Field practice assessment (by preceptors)	79.15	8.793	**77.55**	**6.327**	.984	93	0.328
Summative assessment							
- Group work assessment (*)	79.62	5.622	**84.87**	**2.296**	-5.571	93	**<0.001**
- Cognitive assessment	82.75	5.263	**75.43**	**5.700**	6.466	93	**<0.001**
- Portfolio assessment	76.70	6.838	**79.17**	**4.827**	-1.955	93	0.054
- Total Score (+)	79.79	3.736	**76.77**	**4.004**	3.773	93	**<0.001**

(¥) *Data from CMC module on July-August, 2019*
(*) *The group work is the mean score of assessment of community diagnosis and evaluation program*
(+) *The total score is the final result which is calculated based on the weight of each value.*

Table 5.

Self-assessment of medical students towards learning achievement in the CMC module

Statement ***(After attending an internship in the clinical community medicine module, students stated that)***	Mean score (SD)	Range (min – max)
- **Understand about Indonesia primary health center (duties, functions and work programs)**	8.02 (0.98)	5 – 10
- **Understand about the organizational system, across programs and across sectors in primary health care**	7.74 (1.16)	5 – 10
- **Understand about internal and external activities in PHC**	8.18 (0.99)	5 – 10
- **Able to carry out individual and community health efforts**	8.16 (0.83)	6 – 10
- **Understand about the implementation of the health program at PHC such as program of mother and child health, communicable disease, health promotion**	8.11 (0.97)	7 – 10
- **Able to conduct program evaluation using a systems approach**	8.18 (0.95)	6 – 10
- **Can carry out community diagnostic activities**	8.30 (0.85)	7 – 10
- **Understand comprehensive and continuous patient care**	8.32 (0.88)	7 – 10
- **Using biopsychosocial principles in health services**	8.30 (0.95)	6 – 10
- **Applying clinical skills in solving patient problems in the community**	8.52 (0.95)	7 – 10
- **Describe the role of family and community in primary care**	8.41 (0.84)	7 – 10
- **Implement health promotion and disease prevention in solving patient problems**	8.52 (0.88)	7 – 10
- **Able to communicate well with supervisors and staff in the field**	8.68 (0.93)	7 – 10
- **Able to communicate with patients and their families**	8.68 (0.93)	7 – 10
- **Able to communicate with the community**	8.61 (0.89)	7 – 10

Table 5 shows the mean score of students' online self-assessment at the end of the module activity. The results show that the highest mean self-assessment is “the ability to communicate with health center staff” and “the ability to communicate with patients or their families”. However, students’ online self-assessment toward "knowledge about the organization, management and programs of Puskesmas" shows a low mean score of 7.74. There were even some students who rated themselves with a low score of 5 out of 10 points.

Discussion

The CMC module was the first clerkship that was implemented in our faculty after the implementation of social distancing during COVID-19 pandemic. This module was conducted for 25 days in five weeks from August to September of 2020. CMC clerkship is a model of community-based medical education (CBME) where trainees learn and acquire professional competency in a community setting (Nulkar, 2020; Howe, 2003). The results show that there were limitations in conducting the CBME model during the COVID-19 pandemic (Ferrel & Ryan, 2020; Rose, 2020). Clearly the CBME module needs proper planning, caution, and high vigilance because in Indonesia it involves at least six parties, covering students, field and faculty educators, faculty teams, community, tribal chief/public figures, and local government (Dory et al., 2014; Bernstein et al., 2016). The input from this large number of people is necessary as it relates to various learning methods, field activities, and mentoring by various supervisors tailored to activities or cases in the community.

In this module, the six parties had their respective roles and functions, both from the government, faculties and the community. From the community party, students interacted with community leaders, health cadres and other cadres. The faculty and local government were required to collaborate and coordinate the implementation of this module. This collaboration could usefully be implemented by starting with a cooperation agreement between the university and the local government. This will be evaluated every five years. That said, several efforts were implemented so that trainees could still achieve the expected competencies, such as selecting the right cases to serve as follow-up cases for trainees, adjusting learning methods in communities that were carried out offline and online, and mentoring from the faculty team to the facilitators and preceptors in dealing with rapidly changing learning situations due to the pandemic.

Conducting online tutorials to discuss activities both about community diagnosis and program evaluation at PHC was problematic. Previously, the learning process had been carried out through direct mentoring, where students and facilitators had displayed, analyzed and discussed various data together, directly at one time. This was not easy to do via online learning. To overcome obstacles in this online discussion, we divided students into smaller groups according to the topics by applying *the break-out room* methods. In addition, each student was required to have both similar data and reference sources in order to facilitate online discussions. This was aimed to limit the frequent use of the "share presentation" technique when online discussions took place because it was very distracting in the discussion. Group discussions on community diagnostic activities and evaluation of the Community Health Center (*Puskesmas*) program used various types of data in large amounts. Therefore, before the online discussion was conducted, each group (a) collected data such as primary data (survey and observation data) and secondary data (documents and other related reference sources), (b) made numbering or coding on each file, (c) determined the output of the discussion activities, and (d) distributed softcopy files to all team members and facilitators.

This preparation was very helpful in the online discussion process to ensure that the discussion time was efficient and effective because "share screen" or "share presentation" could be done by one student and there was no need to take turns because all members had access to the same data. In addition, it also helped students who were experiencing interference in the network. The disruption in the form of internet network instability during the discussion was a major obstacle too. However, the implementation of the strategy of dividing into small groups and adjusting to the topic increased the number of teaching hours of lecturers involved in this clerkship. Nevertheless, the learning process ran smoothly, student assignments were completed on time, and student grades for group and individual work also scored satisfactory ratings.

The problem of monitoring students in the field was also a matter of concern for the implementation of this clerkship activity. The monitoring that was carried out during this clerkship focused more closely on the selection of cases and activities at the PHC, the use of personal protective equipment (PPE), and the conditions in PHC and community where trainees were working. The faculty module team carried out direct daily monitoring and also coordinated with the preceptors and the local health office online. Daily monitoring to communicate with students was arranged by video and chat. Performing simple techniques to communicate and to conduct regular monitoring was very helpful for managers to ensure the running of activities and also to monitor the conditions of trainees and others (preceptors and patients/communities), especially during this pandemic. Several studies reported that clinical training activities for medical students during the COVID-19 pandemic were postponed (Alsoufi et al., 2020), whilst others implement clinical training by tightening the use of PPE (Deng, Wang & Tsui, 2020; Harries et al., 2021). In addition, several articles also suggest a combination of online and offline activities in the implementation of clinical training (Alsoufi et al., 2020; Deng, Wang & Tsui, 2020; Franchi, 2020).

Importantly, we asked 'Would this clerkship model achieve student competence?' Table 4 shows that the student assessments on clerkship activities before the pandemic was better than those of the clerkship run during the pandemic. The average student self-assessment also showed good results. However, the assessment of the group work and portfolio exams was higher for the clerkship during the pandemic. This can be understood due to the shorter clerkship time and limited practical work in the field (in terms of variety and location of activities, interaction time with patients, communities, preceptors, and PHC staffs). During the pandemic students experienced difficulties in enriching their learning.

Applying multi assessments is very helpful for analyzing the strengths and weaknesses of learners' achievements in learning activities. In clinical education, clinical competency assessment should describe the integration of knowledge, attitudes, and behavior (Fernandez et al., 2012; Dory et al., 2014). The principle of assessment that can provide the whole picture was by implementing a variety of assessment instruments that describe the integration of the three things mentioned above (knowledge, attitudes, and behavior) (Van Der Vleuten and Schuwirth, 2005; Thammasitboon et al., 2008; Dory et al., 2014). In this CMC clerkship, direct clinical skill assessment such as assessment with Mini-Cex (Norcini et al., 2003; Liao et al., 2013) and OSCE (objective structure clinical education) (Roberts et al., 2012; Schneider et al., 2019) were not carried out because there was no screening of PHC visitors. Hence, this Mini-Cex assessment can be carried out if the patient has been screened for COVID-19. Modifying the implementation of the mini-CEX during the pandemic, to ensure that it can be implemented in the future, was a challenge.

Several weaknesses were found in the implementation of this clerkship. First, there were still quite a lot of assignments, and it was necessary to modify tasks without reducing learning achievement. Second, the use of telemedicine facilities had not been implemented optimally, especially for the implementation of home visits and patient care. This is also related to both preceptors and lecturers who rarely use telemedicine in their daily care for patients. Third, the situation in the field was rapidly changing due to the pandemic and caused disruption to learning activities in the field, The module team had not prepared optimally to deal with this immediately. The need to plan ahead in order to deal with the various possibilities that occurred in the field is a strategy that should be prepared when carrying out the clerkship during a pandemic. Continuation of clerkship program monitoring needed to be done weekly and periodically reported to Tangerang District Health Officer due to the rapid changing nature of pandemic situation.

Conclusion

The implementation of a community medicine module (CMC) amidst the COVID-19 pandemic is very challenging and requires caution in its implementation. The findings of the study clearly indicate that all clinical clerkship modules must be redesigned to suit the current conditions. Modifications and variations

of various learning methods, guidance techniques, monitoring and coordination are all factors that should be considered during implementation.

Education in primary health care services is multi-elemental, especially in the midst of a pandemic, necessitating careful planning for the management of community clerkships. Combining online and offline learning provides opportunities for students to interact directly with patients, communities, and related officers. However, the form and number of assignments that students are required to complete during the community clerkship needs careful consideration.

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