

Capacity building of primary care physician working at remote Uttarakhand, India: An integrated tertiary care approach during COVID 19 pandemic

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ABSTRACT

Strengthening primary care during this unprecedented pandemic of COVID-19 is an urgent demand for public health. It needs to relook into the healthcare machinery and reenergize the much overlooked primary and secondary tier in healthcare delivery to effectively combat COVID-19 and other similar epidemics. **Objectives:** Strengthening of primary care and enhance the skills and knowledge of primary care physician working at Community Health Center/Primary Health Center (CHC/PHC) in context of Family medicine and updating them in recent advancements in primary care management and COVID 19 guidelines for efficient delivery of primary care services. **Methodology:** Director general health services of Uttarakhand was intimated with the aim and objectives of this one-day hands-on workshop going to be conducted at All India institute of medical sciences. All Chief Medical Officers of the various districts had been communicated and sensitized for this noble cause. Total 30 primary care physicians attended the certificate program. This session commenced with a pre-test followed by the lectures, discussions and hands-on skills and ended with a post-test. **Results:** Majority (60%) of the participants were male and 40% were female. A total of 30% had never attended any similar workshop in the past. 45% of them were never exposed to any hands-on training before. Only 10% of them were Postgraduates and the rest were only MBBS (undergraduate). As the scores were not normally distributed, Wilcoxon Signed-Ranks Test was applied for the dependent variable. There was a significant difference ($p < 0.05$) found between pre and post-test results. **Conclusion:** Imparting continuing medical knowledge to the physicians has proved to be an effective tool in good clinical practice. The success of this intervention can be used to further develop and implement workshops and other training sessions to enhance the skills and knowledge of Primary Care Physicians in similar settings that face a shortage of well-equipped physicians.

Keywords: COVID-19, family medicine, preparedness, primary care physicians, primary health care

Introduction

At the end of December 2019, China reported a cluster of pneumonia cases in Wuhan, Hubei province to World Health Organization. It was declared as a Public Health Emergency of

International Concern (PHEIC) on 30th January 2020, for the outbreak of a Novel Corona Virus across the globe. India saw its first case on 30th January itself in Kerala.^[1]

Till the mid of March 2020, Uttarakhand had still not reported any case of COVID-19 but the cumulative cases in India were advancing towards a peak. As India has an extensive network of about 25,000 Primary health centers and 5300 Community health centers, spread across all over

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the country, they can play a vital role in controlling the spread of the epidemic.^[2]

Movement for primary health care is not a new initiative rather an offshoot of the Alma -Ata declaration in 1978, which was absolutely launched for primary health care and expressed its need for public health and community.^[3]

Strengthening primary care with the capacity building of medical officers could be one of the ways to change the idea towards health care development in India. For example, during this unprecedented pandemic of COVID-19 which has led to millions being affected and thousands dying every day across the world, along with preparing tertiary care systems it is important to ensure the preparedness of Primary Health Centers (PHCs) as well. Health systems, in general and PHCs in specific should be made resilient for future epidemics, pandemics or any kind of emergencies, which keep affecting the country, on regular intervals.^[4]

According to Sustainable Development Goal (SDG), the promotion of well-being and ensuring healthy lives with a target to address Non-communicable disease, mental health, injuries, and environmental issues is one of the goals.^[5] Without addressing primary care and strengthening primary physicians who are working at the periphery and community, achieving this target of SDG seems to be difficult.

The first level of contact that individuals and communities have with the health system is the primary and community health centers. In 21st century, India is facing a triple burden of disease, primarily, the backlog of common infections, under nutrition, the rise of non-communicable diseases and emergence of novel pathogens causing epidemics and pandemics.^[6] There is increasing evidence that India needs to shape a robust comprehensive primary care system to achieve advancement in the wellbeing status of the people. This on-going pandemic has further emphasized the necessity for strengthening the primary health care at the earliest.^[4]

Of the numerous challenges that India faces in the reinforcement of existing primary health care services, the absence of a specialized cadre of health professionals, trained to tackle the wide breadth of common acute and chronic conditions in the community is of the main priority. India is finally taking up the call for the need of this specialized cadre of generalists/family doctors/family physicians/family medicine specialists. The concept of Family medicine is finally setting its foot in India and the medicine community is visualizing the family doctors as gate-keepers or health advocates for patients.^[7]

Keeping in view the role of primary and community health centers at these times, AIIMS, Rishikesh organized a COVID 19 preparedness and capacity building workshop for the Medical Officers and primary care physicians of Uttarakhand,

to strengthen and also enhance them with the knowledge of recent technologies, which would also help in rejuvenating and creating resilient health system in the long run.

This program aimed to strengthen the Medical officers of Uttarakhand with the knowledge of primary care and introduce them to the concept of Family Medicine as well as preparing them to tackle the situation in COVID-19 pandemic.

Aim: Capacity building of medical officers and strengthening their primary care skills in view of COVID-19 pandemic.

Objectives

1. Strengthening of primary care and to enhance the skills and knowledge of primary care physician working at CHC/PHC in context of Family medicine.
2. Updating their existing knowledge in recent advancement in primary care management
3. To update them in COVID 19 guidelines for efficient delivery of primary care services.

Methodology

Uttarakhand is a state of 13 districts, most of which are in hilly areas where primary care is much needed. Director general health services was intimated with the aim and objectives of this one-day hands on workshop, to be conducted at All India Institute of Medical Sciences. All Chief Medical Officers of various districts were communicated and sensitized for this noble cause. Majority of them welcomed this concept and were encouraged for conducting workshops/CME for medical officers on regular basis. Out of the 13 districts, 10 had participated in this program. Total 30 Primary care physicians attended the same. At first, everyone was screened for COVID-19 with a checklist prepared by COVID19 task force team and thermal screening. This session commenced with a pre- test followed by lectures and discussions on various aspects of COVID-19 preparedness and hands on skills required to manage primary care in a critical situation and ended with a post test.

All participants were asked to fill the self-administered questionnaire where they had been enquired about their prior exposure of any workshop, their willingness to attend for similar workshops in future and their expectations from this workshop.

Moving forward with the program, the participants were oriented about the necessity of primary care and family medicine in the strengthening of the overall well-being of the community.

The session was commenced with a pre-test assessing the knowledge of the participants on COVID 19, management of trauma in a primary health care setting and diagnosing X-Rays, followed by lectures, discussions, and hands-on training on basic lifesaving skills. A visit was then organized for the attendees to the super-specialty section of the institute.

The session was then concluded by a post-test assessment and suggestions were taken from the listeners for future improvements.

COVID-19 preparedness at primary care

Screening of patients at periphery

All participants were demonstrated that how to screen COVID-19 suspects by a checklist exclusively prepared for screening of patients. Role play was conducted among participants for same.

Emphasis was given to mild and moderate symptomatic cases and their tentative guidelines for isolation. Uses of masks and precautions to be taken during wearing of face mask were very well demonstrated by microbiologist.

All medical officers were demonstrated six steps hand hygiene practices as recommended by WHO and enforced to follow even when hands are visibly clean.

Following preventive measures had been addressed during training session

1. Provide triple layered surgical masks to suspect patients and their attendants.
2. Direct suspected patient to separate room or isolation room, if available.
3. Demonstrated coughing etiquette (cover nose and mouth with tissue/handkerchief or flex the elbow during sneezing and coughing).
4. All participants were instructed to follow Standard precautions such as hand hygiene.
5. Instructions to use personal protective equipment (PPE) when coming in close contact of COVID 19 positive patient and with COVID patient's body secretions (including respiratory secretions) and non-intact skin.
6. Participants were also oriented towards quarantine process which is one of the important measures to prevent transmission.

Medical officers were also demonstrated how to take throat and nasal swab in viral transport media and its transportation to maintain cold chain by microbiologist.

Health care worker safety

1. Knowledge about the mode of transmission, and common myths/misconceptions about COVID-19 were given to the participants.
2. Proper use and disposal of masks.
3. Instructions regarding the regular checks about the health-workers' wellness and their exposure status.

Patient care

1. Instructions regarding segregated patient flow on the basis of their symptoms with proper signages.
2. Instructions regarding the display of COVID-19 signs and symptoms in the screening area, waiting area and consultation room to educate the patients, which should also be displayed in regional language.

Table 1: Socio-demographic and academic profile of Study participants (N=30)

Variables	Percentage (%)
Male	60
Female	40
Post Graduate (MD/MS)	10
Graduate (MBBS)	90
Participants who attended any workshop in Past	60
Participants who attended similar hands on training before	45
Participants who are still preparing for Post graduate exam	30
Willingness to attend similar workshop in future	70

3. Guidance about the strategies to minimize the routine visits of patients such as tele-consultation, prescribing monthly medication.

Infection control and bio-medical waste management

- Demonstrations regarding wearing and disposing off the N95 masks
- Education regarding the placement of bins of appropriate colors at different points of waste generation
- Training regarding disinfection of various items and areas with 1% hypochlorite solution twice-a-day.^[8]

Management and approach towards lifestyle disorders

Lifestyle disorders may come out be a greater challenge in public health during COVID-19 and it might be difficult to address for primary care physicians as well. This session was initiated with lifestyle management, followed by diabetic management at primary care with exclusive focus on how to start insulin therapy? Group discussions and experience sharing on self-monitoring of blood glucose during pandemic. The session ended with a question and answer round which was very well answered by an endocrinologist.^[9]

Conception of "Family medicine concept" at primary care

The backbone of health delivery system is primary care. Addressal to primary care physician is urgently needed, as they are the front-line workers in COVID-19 pandemic.

The attendees were sensitized about the role of Family Physicians in context of family medicine within the healthcare system which inherently lies in the integrative and collaborative function, brought together in a unique and caring way.^[10]

Patient-centered approach and skills is another dimension of family medicine at primary care set-up. A patient-centered approach is built on 3 goals that are:

1. To understand the individual context of the patient regarding the illness
2. Interpreting the psychosocial context of the patient
3. Deciding treatment goals based on the patient's values

The basic skills that are needed to master the patient-centered care approach includes communication skills, which assists in eliciting the patient's agenda with open-ended questions, with engaging in focused active listening without interrupting the patient. The key features of the patient-centered communication are appreciating the patient's perspective of the illness and enunciating empathy.^[11]

Super-specialty visit and its role in primary care

Purpose of the super specialty visit is to make them expose to recent advances in clinical care. Sound and timely referral is one of the important aspects of primary care physician. All participants visited intervention radiology department where basic X-Rays were discussed with radiologist, as they are essentially required during emergency at primary care. Ultrasound-guided thoracentesis catheter drainage were demonstrated which is an efficient, safe, minimally invasive procedure with a high rate of success.^[12]

The session ended with a fruitful discussion with all the participants. All questions by the participants were answered in detail considering their role at PHC/CHC.

ABCD of Trauma at Primary care

1. **Airway management:** The attendees were briefed about managing the airway patency and ventilation and that it is one of the main requisites of emergency care, failure to which is one of the major causes of preventable death in trauma. The knowledge and skills regarding manual maneuvers to confirm airway patency, obstruction and ensuring the stability of cervical spine was demonstrated using manikins/simulation mannequins. In addition to these, they were instructed about the skills to utilize the basic equipment including, suction and bag-mask ventilation.
2. **Breathing-** At primary level facility, the physician should be trained to diagnose and provide first-aid care for any kind of respiratory distress. The participants were trained to deal with common primary care emergency, tension pneumothorax, radiologically and clinically. Definitive treatment by tube thoracostomy and primary care treatment by needle thoracostomy was also discussed. Also, illustrations were given about the application of three-way dressing for immediate treatment of a sucking chest wound.
3. **Circulation** (management of shock): The training about the assessment of the circulation included checking pulse, venous filling, and skin temperature. They were also explained that external hemorrhage may be controlled through sustained manual pressure and application through a pressure dressing. Demonstration was also given regarding the use of arterial tourniquets in extreme situation and their removal under controlled circumstances. The techniques of splinting of the fractured extremities, deep inter fascial packing for complicated wounds and wrapping for pelvic fractures at PCH level were also demonstrated.
4. **Management of head injury:** The primary care physicians were trained about the assessment of neurological status. As hilly areas of Uttarakhand are very much prone to

road traffic accidents, leading to head injury and disability. Identification of levels of consciousness, demonstration of how to calculate Glasgow coma scale through role play, identifying the lateralizing signs and pupillary reflexes were very well discussed with the participants.

5. **Management of spinal injury:** During handling of the trauma patients, assessment of risk of spinal injury is also essential which can be done by monitoring neurological functions at regular intervals. The participants were made aware to refer the trauma patients to the next highest level in the healthcare system rapidly if there are any spinal injuries or suspicion thereof. Demonstration of appropriate handling the patients to prevent excess movement of the cervical spine were given which included techniques of log-rolling, application of spinal backboard and collar for cervical spine injuries.
6. **Safety of healthcare personnel:** During this unprecedented situation, the physicians handling the trauma cases have to be more pre-cautious to protect themselves against the infection where body secretions, blood and other infected fluids are plentiful and there is an increased propensity to contact. They were also made aware about the importance of employing basic protection which includes gloves, goggles, face masks, water-resistant gowns and as much as possible minimum contact with the patient.^[13]

Pre and post-tests

A pretested questionnaire was used to conduct pre and post assessment among participants. A total of 20 questions were asked to evaluate attendees' improvement in knowledge about COVID-19, management of trauma in primary care set-up, management of diabetes, and diagnosing X-Rays.

Results

Majority (60%) of the participants were male and 40% were female. Total 40% of them had never attended any similar workshop in the past. 55% of them were never exposed to any similar hands-on training before and 30% of them were preparing for Post graduate exams and not interested to work as a primary care physician. Only 10% of them were Post graduate and rest were only MBBS (undergraduate)[Table 1].

Total 70% of them are willing to attend similar type of CME/Workshop in future while remaining did not show any interest in academic activity.

Test scores of all attendees were compared after the session. Before comparison, the scores were evaluated for the normality.

As the scores were not normally distributed, Wilcoxon Signed-Ranks Test was applied for dependent variable.

The critical value for W at N = 30 was 137, and null hypothesis is rejected if $T \leq 137$ at $\alpha = 0.05$ significance level. There was a significant difference ($p < 0.05$) found between pre and post-test.

Discussion

The certificate program for the capacity building and strengthening of the medical officers in Uttarakhand, conducted by AIIMS Rishikesh, proved to be a success, as all the attendees who participated in the program were significantly benefited in knowledge and skills which was discussed and demonstrated during the workshop.

A randomized controlled trial conducted in Tunisia, North Africa by Spagnolo J *et al.* in March, 2020 where primary Care Physicians (PCPs) were trained based on the “Mental Health Gap Action Programme (mhGAP) Intervention Guide (IG)”. Statistical significant impact was reported after the trial leading to increase in mental health knowledge and self-efficacy of the PCPs and decrease in referral rates for specialised services.^[14]

Similar workshop was also conducted by Laiberte *et al.* (2010) and Romero Rodriguez *et al.* (2019).^[15]

According to J I Vidal-Pardo *et al.*, a simple intervention like training workshop for the primary care clinicians can improve the quality of care for diabetic patients. It was a multifactorial intervention and was proved to be more efficient than the intervention targeted against only one component. This finding strongly corresponds with our study as the certificate program conducted here was also a multifactorial intervention where the participants were trained about many different yet interlinked components.^[16]

Online training workshop for primary health care provider's knowledge in diabetes mellitus management in China by Mu-Hong Wei *et al.*, achieved a significantly increase in their knowledge regarding the subject.^[17] These findings will encourage us to conduct similar online webinar for primary care physician to update their existing knowledge.

All these studies correspond with the results of our intervention. Garnering predominantly positive feedback from the participants, this program turned out to be efficiently fulfilling of the required objectives. Primary care and public health have always been witnessed to prove the inevitable role during preparedness and control of many pandemics before. Continuous training, capacity building and skills-based program enhance and update the existing knowledge of primary care physician and will prepare them to combat this pandemic.

Conclusion

Being the first and most important point of contact between the community and a physician, the PHCs and CHCs play a very crucial role especially in rural and hilly areas of a state like Uttarakhand. The health personnel working in these centers contribute towards an integrated system of curative and preventive health care.^[18]

Uttarakhand being a hilly terrain registers higher number of trauma cases as compared to the other parts of the country, which requires the health personnel to be adequately trained in handling trauma and providing speedy first-aid. In addition to be well educated about acute and chronic diseases, the physicians are also required to be competently updated about the recent advancements in the field of medicine and the novel diseases. Continuing Medical Education focuses on maintaining or developing knowledge and skills which is essential for safe clinical practice.^[18]

It has been established that imparting this continuing medical knowledge to the physicians has proved to be effective tool in a good clinical practice.^[19]

Though this program was a great success, it had a few limitations. Firstly, the demonstrations could not fully reflect the real-life situations which will be overcome by hands-on training in actual trauma situations. Secondly, imparting knowledge about so many components required a program to be conducted for a long duration which will be considered in planning the next workshop or webinar by the institute.

Future prospects

In the near future, the institute plans to conduct a webinar for medical officers at larger scale at regular intervals to strengthen primary care which lays down a strong foundation for developing healthy India.

Ethical consideration

Ethical permission was taken from institutional ethical committee. Ethical approval number is ECR/736/inst/UK/2015/RR-18. Confidentiality of information collected will be maintained in the study.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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