ORIGINAL ARTICLE

Strengthening linkages between tertiary care hospitals and Primary Health care facilities Experiences from an online capacity building program for Community Health Officers of Odisha

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Abstract

Introduction: Primary healthcare (PHC) is essential for strengthening national health systems. Despite various initiatives in India, challenges persist, including inadequate infrastructure, shortage of healthcare workers, and limited service availability. To address these challenges, an online innovative capacity-building program was developed to enhance the skills of Community Health Officers (CHOs) in Odisha while integrating tertiary care hospitals with primary healthcare facilities. **Methodology**: An online innovative comprehensive program was developed in multiple phases: phase 1 needs assessment and planning, phase 2 curriculum development, and phase 3 platform development. Thereafter, in phase 4, resource faculty from prominent medical institutions were recruited and oriented on course structure. CHOs were enrolled in the phase 5, and continuous evaluation mechanisms were established, including pre and post-tests, skill video submissions, peer evaluations, and module exit exams. **Results**: The program enrolled 398 CHOs, with 88% completing the pre-test and 70% submitting skill videos. Peer evaluations and feedback from stakeholders, including experts from tertiary care hospitals, highlighted the program's effectiveness in enhancing skills. The collaboration between tertiary care experts and NHM officials in platform selection, curriculum design, faculty recruitment, and program review ensured online training program aligned with course objectives, leveraged expertise, and remained responsive to evolving needs, creating a digital link between grassroots healthcare workers and tertiary care for enhancing primary healthcare delivery. **Conclusion**: The integration of tertiary care hospitals with PHC, facilitated through an online program for CHOs in Odisha, demonstrates the potential for improving health, serving as a replicable model for other states.

KEYWORDS
Needs Assessment; Feedback; Public Health; Tertiary Care Centers; Tertiary Healthcare; Curriculum; Health Personnel; Primary Health Care

INTRODUCTION

Primary healthcare (PHC) represents essential and economically viable healthcare accessible to all members of a community, which encompasses health promotion, disease prevention, health education, and rehabilitation.(1) It is whole of society approach acknowledged even before the Alma-Ata declaration and is fundamental for strengthening the national health system.(2) The evolution of primary healthcare in India traces back to the Bhore Committee's report in 1946, which laid the groundwork for a three-tier healthcare system and the establishment of primary health centers as the initial point of contact for healthcare delivery at the grassroots level.(3) Following this, the Integrated Rural Development Program (IRDP) in the 1970s introduced vertical programs within the existing health system. (4) Subsequently, the Comprehensive Rural Health Services Project (CRHSP) was implemented to provide essential healthcare services with a specific focus on maternal and child health.(5) The National Rural Health Mission, launched in 2005, bolstered primary healthcare by delivering quality healthcare services in rural areas through the integration of grassroots healthcare workers, viz Accredited Social Health Activists (ASHAs) at the village level.(6)

In alignment with the Sustainable Development Goals set forth by the United Nations in 2015, the Government of India has embarked on a series of significant primary healthcare initiatives. These initiatives include JSSK (Janani Shishu Suraksha Karyakaram)(7), which provides free-of-cost services such as drugs, diagnostics, diet, and transport. Additionally, RBSK (Rashtriya Bal Swasthya Karyakram)(8) offers screening for children from birth to 18 years old for four Ds—Defects at birth, Diseases, Deficiencies, and Development delays. It covers 32 common health conditions, providing free treatment and management at the tertiary level. Furthermore, PMJAY (Pradhan Mantri Jan Arogya Yojana) assists households in accessing secondary and tertiary care by offering funding of up to Rs. 5 lakh per family per year. The introduction of the National Health Policy in 2017 further aimed at increasing government funding for the provision of Primary healthcare, strengthening primary health infrastructure and public and private partnerships. Additionally, to build the capacity of health facilities, the introduction of the National Digital Health Mission (NDHM)(9) has led to telemedicine facilities at grass root level.(10)

Despite various initiatives undertaken to strengthen primary healthcare in the country, several challenges persist, including inadequate infrastructure, a shortage of healthcare workers, limited service availability, urban-rural disparities, high out-of-pocket expenditure, patient-centric care, and substandard health service delivery. In an effort to address these challenges, the introduction of a new cadre of mid-level healthcare providers, known as Community Health Officers (CHOs), was initiated at Health and Wellness Centers (HWCs) to deliver an expanded range of services at the grassroots level, thereby boosting primary healthcare.(11) With their introduction, access to essential primary healthcare services has been facilitated among previously underserved populations, fostering community trust and facilitating early diagnosis and prompt treatment at the grassroots level. Furthermore, the gatekeeping role assumed by CHOs at HWCs has alleviated the burden on secondary and tertiary healthcare facilities. Their deployment demonstrates a remarkable instance of task shifting, with healthcare personnel across all levels contributing to the dissemination of

primary healthcare in resource-constrained settings. However, despite these achievements, challenges persist, including the lack of high-quality training, a comprehensive platform for refresher courses, inadequate skill development opportunities, insufficient peer-to-peer learning for practical skills application, and limited linkage with tertiary care facilities. In order to mitigate these challenges and bolster primary healthcare, an online capacity-building program was developed to enhance the skills of the Community Health Officers in Odisha. The present article highlights the integration of tertiary care hospitals with primary facilities for different phases of the capacity-building model, examining the potential for the bridge between tertiary hospitals and grassroots healthcare facilities for the provision of primary healthcare. This endeavour aligns with the goals of Universal Health Coverage and the Sustainable Development Goals, aiming to improve primary healthcare accessibility and quality.

Material & Methods

A multipronged collaborative approach was adopted for the development of an online capacity building program for upscaling Community Health Officers. The development occurred in different phases as below:

Phase 1: Needs Assessment and Planning

The origin of the innovative online course tailored for Community Health Officers (CHOs) in Odisha commenced with a comprehensive needs assessment led by state officials. This assessment involved extensive discussions of officials of the National Health Mission, State of Odisha, (Mission Director, Additional Mission Director), Senior State Training Consultant, Director of Nursing along with district/block level officials and representatives of CHOs with PGIMER (Post Graduate Institute of Medical Education and Research), Chandigarh an institute of national excellence under the act of Parliament Government of India. Through this process, several gaps were identified, such as inadequate training duration for newly appointed CHOs, lack of re-orientation training, suboptimal inculcation of practical skills during existing training along with time constraints arising from the multifaceted responsibilities in handling national programs. Recognizing these challenges, officials from NHM Odisha sought collaboration with the International Public Health Management Development Program (IPHMDP) at PGIMER Chandigarh.(12) Launched in 2016, the program aims to enhance the capacity of middle and senior professionals worldwide in public health leadership and management. To date, IPHMDP has trained 1300 professionals from 85 countries under the Indian Technical and Economic Cooperation scheme of the Ministry of External Affairs, Government of India. Beyond its flagship program, it also offers public health policy and management programs, executive leadership programs (ELP), and online courses on various domains of management and leadership. The objective of the exercise was to develop a distinctive course specifically tailored to enhance the capacity of CHOs, enabling them to effectively deliver the expanded range of services as envisaged under comprehensive primary health care, Ayushman Bharat Scheme, Government of India.(13)

Phase 2: Curriculum Development

In the second phase, the curriculum development process involved two rounds of extensive meetings with experts selected from prominent tertiary medical institutions such as PGIMER Chandigarh, AIIMS (All India Institute of Medical Sciences) New Delhi, AIIMS Jodhpur, NIHFW (National Institute of Health and Family Welfare) New Delhi, NHSRC (National Health Systems Resource Centre) New Delhi, and NAMS (National Academy of Medical Sciences), New Delhi. After meticulous discussions, it was decided that the comprehensive modules developed by NHSRC for CHOs would serve as the foundation of the curriculum, supplemented with additional resource materials to ensure its comprehensiveness. A weekly timetable was established, comprising of live sessions lasting around 3 hours every Monday, featuring 3-5 short lecturites of 15-20 minutes each followed by skill video of relevant skills taught during the lecturites. It was followed by providing them with certain skills that CHOs need to demonstrate and make short skill

videos (3-4 minutes) in their respective field practice area /field posting in their respective health and wellness centre from Tuesday till Thursday. Thereafter CHOs needed to post the videos on the online portal, which were then randomly shuffled and sent to their peers for assessment based on 10 point OSCE checklist, which was prepared beforehand. On Fridays, CHO were supposed to undertake peer evaluations of the videos submitted by their peers, and on the Saturday, an exit exam was scheduled.

Phase 3: Platform Development

After the curriculum was developed, attention turned to creating the online platform. We conducted a thorough assessment of several learning management systems, shortlisting those with a wide range of features and functionalities. Taking various factors into consideration, we chose the features that most closely matched our needs. The selected platform boasted built-in features such as a resource pool, pre-tests, post-tests, areas for video assignments, module exit exams, and peer evaluation videos. The selection of features during platform development also involved a series of meetings between PGIMER, NHM officials and other partners from tertiary care institutes.

Phase 4: Faculty Recruitment and Orientation

An open call was created to recruit resource faculty for the one-year program, with a focus on experts from prominent medical institutions and tertiary care hospitals. The preference was given to experts with prior experience training grass root level workers at national or state level. Rigorous selection criteria were adopted wherein potential faculty members for the course were asked to deliver 2 minutes of pitch presentations on a topic. During the pitch presentation, they underwent evaluation based on various parameters such as communication skills, presentation style, bilingual language usage, teaching pace, and efficiency in using IT tools. Following recruitment, an orientation meeting was organized to familiarize the faculty with the course structure and the development of resource materials and skill videos.

Phase 5: Training and Implementation

The final phase involved the implementation of the course. The enrolment of CHOs from each district was carefully managed to minimize disruption to district operations. Registration and mock sessions were scheduled to familiarize CHOs with the course portal and its functionalities. A centralized Zoom platform link was provided to all CHO participants for the duration of the entire course, streamlining access to all live sessions. Additionally, a nodal officer was appointed from each district to facilitate coordination between organizers and CHOs. Continuous evaluation mechanisms were established, including pre and post-tests, skill video submissions, peer evaluations, and module exit exams at the participant level, as well as monthly review meetings and quarterly program advisory committee meetings at the administrative level. The program advisory committee comprised officials from Odisha, including the Additional Director of Nursing, Team Leader from the Directorate of Nursing, Senior Training Consultant, a Professor from a Nursing College in Odisha, and experts from tertiary care institutes such as the Program Director from PGIMER Chandigarh, Professors from AIIMS Jodhpur and AIIMS New Delhi, representatives from NIHFW New Delhi, and NHSRC Officials and the Secretary from the National Academy of Medical Sciences. During each meeting, challenges encountered by CHOs were documented and solved at different levels.

During the implementation of an innovative digital learning pedagogy tailored for Community Health Officers (CHOs) in Odisha, several challenges arose across different phases, necessitating strategic solutions to ensure smooth progress. In the initial phase of Needs Assessment and Planning, challenges included identifying gaps in CHO training and ensuring effective coordination with state officials and stakeholders. Subsequently, during the Curriculum and Schedule Development phase, challenges encompassed aligning the curriculum with identified needs and establishing a mutually feasible timetable. In the Platform Development phase, challenges revolved around selecting a suitable learning management system and integrating necessary features. During the Faculty

Recruitment and Orientation phase, challenges involved identifying qualified facilitators and effectively conducting orientation sessions. Finally, in the Training and Implementation phase, challenges included managing participant enrollment and ensuring engagement despite limitation in internet access. To address these challenges, initiatives such as utilizing internet access at health centers, implementing a discussion board for post-session doubts, and enhancing engagement during live sessions through interactive activities were undertaken. These initiatives aimed to overcome barriers and create an immersive learning experience conducive to the comprehensive development of CHOs in Odisha.

RESULTS

The pioneering online training program for Community Health Officers (CHOs) in Odisha enrolled 398 participants. Significantly, 88% (n=352) of the enrolled CHOs have completed the pre-test. 70% (n=279) of the CHOs successfully submitted 60 skill videos within a period of 10 months. These videos were then peer-evaluated, and majority of the submitted skill video assignments have received scores between 8-10 out of a total of 10. These videos covered critical areas such as diagnostic tests for communicable and non-communicable diseases, patient counselling, and prevention strategies, enabling the participants with the necessary skills in essential healthcare delivery tasks. To ensure continuous improvement, feedback on various parameters, including the effectiveness of communication, clarity of content delivery, and the overall quality of the course material were taken. 90% (n=359) of the respondents rated these aspects as 4 or 5 out of a total of 5, reflecting the course's effectiveness in imparting knowledge and skills to the CHOs. In addition to the online components, continuous monitoring of CHOs was ensured through physical assessments conducted by medical officers in the state of Odisha.

The experts from tertiary care hospitals, with their deep understanding of healthcare systems and clinical practices, participated in discussions to identify gaps in the training and skills of CHOs. Their perspectives helped in solving issues such as inadequate training duration, the need for re-orientation programs, and the lack of practical skill development among CHOs. The course objectives and priorities were developed with their insights, ensuring that the curriculum effectively addressed the in-field challenges of CHOs. The curriculum development process involved two rounds of extensive meetings with experts selected from renowned tertiary medical institutions, including PGIMER Chandigarh, AIIMS New Delhi, AIIMS Jodhpur, NIHFW Delhi, NHSRC Delhi, NAMS, and NHSRC New Delhi. By incorporating their knowledge of advanced medical practices and emerging healthcare trends, these experts ensured that the curriculum reflected the skills required in the field, thus enhancing its relevance and effectiveness for CHO's in delivering the expanded range of services at health and wellness centre.

The selection of features during platform development was not only based on technical considerations but also involved extensive discussions and meetings between experts from tertiary care experts and NHM officials. Tertiary care experts provided valuable insights into the usability and effectiveness of different features, ensuring that the chosen platform aligned with the course objectives and instructional methods. This collaboration created a digital link between the grassroot cadre and the tertiary care experts ultimately enhancing the effectiveness and accessibility of the training program.By recruiting faculty members from tertiary care institutes, the training program was able to leverage the expertise of professionals with extensive clinical experience and academic qualifications. Their involvement enriched the learning experience for CHOs, ensuring they received instruction grounded in the latest medical advancements and best practices, helping improve care at the primary level. Throughout the training and implementation phase, tertiary care experts served as focal point of contact from disseminating information on the required skills for the CHO through the OSCE checklists. By participating in review meetings and advisory committees,

these experts helped identify areas for improvement and refinement, ensuring that the program remained responsive to the evolving needs of CHOs and the healthcare system at large.

Box1: Qualitative feedback from different stakeholders

The OSCE initiative for peripheral health workers is commendable, showing exceptional quality and monitoring. Its success should be shared in reputable journals, serving as a model for other states."- ***PAC member***

Efforts in program development ensure smooth sessions and high participant engagement. OSCE is vital for skill impartation, and thorough feedback collection is crucial for continual improvement. - ***PAC member***

The program's nursing initiative is admirable, with a comprehensive curriculum and rigorous monitoring. Feedback-driven refinement creates an engaging learning environment. - ***PAC member***

Training for community health officers is crucial, and the program's comprehensive approach enhances essential skills. Concurrent evaluation promises to improve program quality further. - ***PAC member***

The Concurrent Evaluation proposal reflects commitment to program enhancement. Emphasizing continuous monitoring and outcomes will ensure its success."- ***State traning consultant***

By taking up challenges as opportunities and fostering collaboration with esteemed tertiary care institutions, we've moved in a path towards enhanced healthcare delivery at the grassroots level- ***State official***

I found the session to be incredibly enriching and informative. The innovative teaching methods employed were truly captivating, enhancing my understanding and leaving me eager for more.- ***Participant***

The session was a game-changer for me; the use of different teaching methods and the visuals made learning interesting- ***Participant***

Peer evaluation for the video assignment was insightful; receiving feedback from classmates helped me refine my skills and grow as a learner."- ***Participant***

Live interactive session online is equivalent to the physical training programs along with the feasibility of learning from home- ***Participant***

*Through this unique endeavour, we're not just shaping a course but shaping the future of healthcare delivery in Odisha. –****Faculty***

As faculty member, I am very happy to be a part of this special program. The digital platform being used to help Community Health Officers learn new skills is really different and exciting. Our use of skill videos to teach, is something not many courses do. We think this makes learning more interesting and fun for everyone involved.- ***Faculty***

Despite being online, the enthusiasm and responsiveness of Odisha's CHOs have been truly remarkable. Their eagerness to learn and active participation during sessions highlight their dedication to enhancing healthcare in their communities. It's inspiring to witness their interactive

engagement, showcasing a collective commitment to embracing new skills and knowledge for the betterment of public health- ***Faculty***

Conclusion

The integration of tertiary care hospitals with primary healthcare facilitated through an online capacity-building program for Community Health Officers (CHOs) in Odisha, serves as evidence of the potential for strengthening the healthcare system through collaboration and innovation. This endeavour has not only addressed the gaps in CHO trainings but has also established a robust connection between grassroots and high-level healthcare facilities, thereby enhancing healthcare accessibility and quality. The success of this initiative is evidenced by the significant enrolment of CHOs and their active participation throughout the program. Completion rates, skill video submissions, and peer evaluations underscore the commitment of CHOs to acquiring essential healthcare delivery skills. Furthermore, collaboration with experts from prestigious institutions has not only supplemented the course content but has also fostered a multidisciplinary approach to healthcare delivery. In conclusion, the strengthening of the linkage between tertiary care hospitals and primary healthcare, as demonstrated by the online capacity-building program for CHOs in Odisha, holds immense promise for improving healthcare outcomes and advancing towards the goal of universal health coverage, serving as a replicable model for other states.

Authors Contribution

All authors have contributed equally.

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Conflict of Interest

There are no conflicts of interest.

Declaration Of Generative AI And AI Assisted Technologies In The Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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