Training community health workers for the COVID-19 response, India
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Objective To report experiences in Bihar, India’s most densely populated state, with a state government programme to train community health workers (CHWs) to combat the coronavirus disease 2019 (COVID-19) pandemic in the state’s predominantly rural population of 128 million.

Methods In May 2021, during the second wave of the COVID-19 pandemic in India, the Bihar government initiated a 1-day COVID-19 training programme for rural, unaccredited CHWs who had recently completed a community health education course from the National Institute of Open Schooling. The use of primary health centre buildings and doctors to deliver COVID-19 training and the existence of certification data on CHWs who participated in the community health education course streamlined implementation and minimized costs. After COVID-19 training, CHWs were paid as first responders and COVID-19 treatment workers by the Bihar government.

Findings Overall, 15 000 CHWs in Bihar completed the COVID-19 training programme in 2021 and a further 30 000 were enrolled. A survey of CHWs carried out after COVID-19 training had started found that 80% (81/102) were satisfied with training and felt they were receiving information from reliable sources.

Conclusion The training and mobilization of a team of CHWs helped ease pressure on a stressed, rural, health-care system in Bihar and improved its preparedness for future COVID-19 outbreaks. The success of the training programme illustrates how local initiatives can help address gaps in the health workforce and extend the reach of public health care into rural areas, in addition to improving COVID-19 responses.

Introduction
Community health workers (CHWs) can extend the reach of health-care systems to low-resource communities.1 In India, due to a shortage of doctors,2 these health workers play an important role in providing primary health care in rural areas, where 70% of the country’s population resides.3 In addition, CHWs played a critical role during the coronavirus disease 2019 (COVID-19) pandemic, particularly in predominantly rural states.4

In 2018, the Indian government launched its flagship Ayushman Bharat programme (National Health Protection Scheme) to provide universal health care to marginalized communities.5 Health and wellness centres were established in villages to deliver basic health services close to rural communities.6 In addition, it was hoped that community-centred wellness activities developed through these centres would increase community involvement and lead to better long-term public health outcomes.

Today, health and wellness centres provide preventive, promotive, rehabilitative and curative care for an expanded range of services encompassing reproductive and child health, communicable and noncommunicable diseases, palliative and elderly care, basic emergency care, oral health and ear, nose and throat care.7 Each centre typically serves 10 000 people and is supported by a trained primary health care team of non-physician health workers, which often comprises two trained multipurpose workers (male or female educated to grade 12, including science), five government-accredited social health activist workers who perform outreach, and one mid-level health provider (typically a nurse or someone with a degree in community health).8 Accredited social health activist workers are female village residents who act as CHWs.9,10 Their role was created in 2005 to provide maternal and newborn health care; however, over the years their work has expanded to cover other health campaigns that require outreach, as well as domestic and community-based services. Clusters of health and wellness centres are linked to primary health centres that provide more extensive medical services for populations of around 50 000 and that serve as the first points of referral and as administrative hubs.11 Each primary health centre is staffed by at least one qualified doctor, one staff nurse, one pharmacist and one laboratory technician. In November 2020, more than 50 000 health and wellness centres were operational across India.12 The goal is to establish a network of 150 000 centres by December 2022.13

Besides the accredited social health activist workers who provide frontline services in communities as part of the Ayushman Bharat initiative, there is also a large number of unaccredited CHWs who are self-trained and who have picked up basic skills working, for example, in nursing homes or pharmacies. Local communities with whom CHWs have built a relationship of trust regard them as doctors and approach them as the first points of contact for primary health care. These unaccredited CHWs played a critical role in responding to the COVID-19 pandemic as it swept through the country, especially in predominantly rural states like Bihar.14 Bihar is India’s most densely populated state, is the third largest state by population and 89% of its 128 million inhabitants live in rural areas.15 Although unaccredited CHWs see a large number of people, they do not have formal training and may, therefore, pose a risk to patients. The aim of this paper was to report the results of a recent initiative by the Bihar government to train unaccredited CHWs, particularly in response to the COVID-19 pandemic, and to bring them into the mainstream health-care system. A similar model could be adopted by other states and developing nations that are struggling with a shortage of frontline health-care workers, especially in rural areas.

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Methods

The first case of COVID-19 was reported in India in January 2020 and the infection rate was under control by February 2021. However, the number of cases started trending upwards again in March 2021, which led to a second wave of infection. By May 2021, more than 400,000 new cases were being reported each day. According to the Centre for Science and Environment in India, this wave was due primarily to a surge in cases in rural districts.16

The state of Bihar reported its first COVID-19 case in March 2020. During the first wave, the state witnessed a surge driven by migrant workers returning home from different parts of India following an abrupt national lockdown. In March 2021, Bihar was hit by an enormous second wave, with rural areas affected on a larger scale. The primary driver was thought to be the influx of migrant workers from other states, which coincided with a major holiday. At the peak in May 2021, more than 15,000 new cases were reported each day in Bihar (Fig. 1). Moreover, health experts believe that the number of cases was substantially underreported because of a lack of adequate testing infrastructure in rural areas.17 The second wave exposed weaknesses in the rural health-care infrastructure and the lack of trained health-care workers. The Centre for Science and Environment has estimated that in 2021 rural areas in India needed 76% more doctors to manage primary health care.18

Community health worker training

In May and June 2021, the Bihar government implemented a specialized training programme designed to enable the large workforce of unaccredited CHWs to help manage the COVID-19 outbreak at the grassroots level. The State Health Society of the Bihar Department of Health estimated that there were more than 400,000 CHWs in the state in 2015.19 An initiative to educate CHWs about community health had already started before the pandemic in September 2019. The approach to COVID-19 adopted was to supplement the community health education initiative with focused COVID-19 training and to establish a formal structure to enlist the help of CHWs in managing COVID-19.

To train unaccredited CHWs in community health, the State Health Society signed a memorandum of understanding with the National Institute of Open Schooling, which is an autonomous organization set up by the Indian Ministry of Education. In addition, the Society constituted a nine-member advisory committee to monitor the training course, which was named Jan Swasthya Pathyakram (i.e. community health education). The National Institute of Open Schooling in partnership with the State Health Society designed the curriculum, which covered general health, a balanced diet, malnutrition, mother and child care, and family welfare. The course ran for over 400 hours and provided both theoretical and practical modules which included self-learning material, audiovisual programmes and hands-on training.20 Training was carried out at all 397 functioning primary health centres across the 38 districts of Bihar. Participants were enrolled through newspaper advertisements and social media.21 Eligible candidates had to have successfully completed grade 10 of schooling and to have worked as a CHW for 3 to 5 years. The fee was 5000 Indian rupees (¥; equivalent to around 70 United States dollars; US$), which covered the costs of the study materials and the 1-year training course. Participants were registered with the Patna branch of the National Institute of Open Schooling and training was conducted by qualified doctors attached to primary health centres. At the end of training, participants had the option to take a CHW certification examination, which comprised theoretical and experiential modules, at an additional cost of 900 ₹ (approximately US$12) at central government schools (i.e. Kendriya Vidyalayas). On passing the examination, participants received a course completion certificate from the National Institute of Open Schooling, which was evidence that the health worker was eligible for government employment. Each primary health centre maintained contact with, and aided, health workers trained at their facility. By May 2021, over 15,000 CHWs had completed the community health education training course and passed the certification examination. Subsequently, an estimated 30,000 CHWs were either undergoing training or waiting to take the examination.

COVID-19 training

At the onset of the second wave of the COVID-19 pandemic in March 2021, the absence of a medical workforce in rural areas created a logistical plight for the Indian government.22 However, even without special training, CHWs were helping their local communities by encouraging the behavioural changes needed to prevent infection, such as social distancing, wearing face masks, hygiene measures and adoption of the Aarogya Setu mobile phone application.

![Fig. 1. Number of new COVID-19 cases per day, Bihar, India, 2020–2021](https://example.com/covid19fig1.png)
developed by the Indian government, which provided people with information about individual and local risks of infection.23 The government recognized the importance of officially deploying the services of CHWs and, in May 2021, the Bihar Department of Health produced a document on the induction of CHWs into formal roles after they had undergone specific COVID-19 training. Here, we report this new development in accordance with the United Nations Children’s Fund’s framework for optimizing community health programmes: the Community Health Worker Assessment and Improvement Matrix.24

The first step was to provide formal training on responses to the COVID-19 pandemic to the first 15,000 rural CHWs who had completed the community health education training course and passed the certification examination. All primary health centres in the state of Bihar were instructed to contact CHWs who had undergone training and to ask them to report back to their centres for COVID-19 training. Thereafter, the CHWs were enlisted and paid by the state government as first responders and COVID-19 treatment support workers.

A 1-day COVID-19 training programme was designed to enable CHWs: (i) to safely identify potential cases of COVID-19 based on symptoms, while maintaining social distancing; (ii) to liaise with the nearest primary health centre to arrange testing and treatment; (iii) to monitor patients confirmed as having COVID-19 who were isolating at home; (iv) to coordinate activities with the local district control centre; (v) to refer patients with serious symptoms to dedicated COVID-19 health centres in the district; and (vi) to maintain a list of all patients seen by CHWs. Training was carried out by doctors in primary health centres with groups of 70 to 80 CHWs.

Even after training, CHWs did not carry out polymerase chain reaction testing (PCR). Instead, they were asked to refer patients for testing at primary health centres. In general, symptomatic COVID-19 patients were referred to primary health centres that had test facilities and links to dedicated COVID-19 health centres. However, CHWs were authorized to prescribe the standard government recommended list of COVID-19 medications. Primary health centres assisted CHWs on an ongoing basis with any help required. Although the Bihar government did not provide any special protective equipment as part of COVID-19 training, basic supplies, such as masks, gloves and soap, were distributed at the community level. In addition, nongovernmental organizations provided funding for, and distributed, protective kits to CHWs.

The State Health Society in Bihar was responsible for the overall monitoring and supervision of the CHW training programme in collaboration with the central National Institute of Open Schooling and primary health centres across the state. In addition, primary health centres were responsible for monitoring the quality of their own training and, if required, submitted feedback on areas of improvement to district health officers. Data on CHW training were collected by each primary health centre and reported to the State Health Society and the National Institute of Open Schooling. The data were used to improve the coverage and quality of the training programme and to help plan mass community campaigns.

No additional examination or certification was offered to CHWs after completion of the COVID-19 training because the COVID-19 module was made available only to workers who had already completed the community health education training course and passed the certification examination. Nevertheless, the Bihar government regards these CHWs as capable of spearheading community campaigns, such as the campaign against malnutrition held on village health and nutrition days and community awareness campaigns aimed at preventing communicable diseases such as tuberculosis. After completing COVID-19 training, CHWs participated in community actions against COVID-19, such as vaccination campaigns. Although these CHWs are not salaried, there are financial incentives. The Bihar government decided to award CHWs a fixed payment of 200 ₹ (approximately US$ 3) for each COVID-19 patient they handled and referred to primary health centres. The CHWs had to submit patient details (i.e. a mobile phone number and a unique national identification number) to the relevant centre to be eligible for the payment.

Practising CHWs are usually members of a Graameen Chikitsa Seva Samanvay Samiti (rural medical services coordination committee), which is a key community forum for facilitating information sharing and which acts as a peer support group. These committees, which operate at village and district levels, promote the use of accurate information, conduct sessions with experts and encourage health workers with experience in hospitals, nursing homes or clinics to participate in their local communities.

Funding

Health and wellness centres and primary health centres are operating under the Ayushman Bharat programme and the budget for these facilities is primarily covered by central government, with some support from state governments. Although the programme funds the training of accredited social health activist workers, it does not cover the funding for training unaccredited CHWs. In Bihar, CHW training undertaken by the state government was primarily funded by the registration fees for the National Institute of Open Schooling’s community health education training programme. The small additional funding required to create the add-on COVID-19 training module was provided by the State Health Society of the Government of Bihar.

Results

A survey of 547 CHWs in Bihar carried out in April 2021 before the Bihar government decided to formally enlist them in the COVID-19 response found that 88% (481/547) thought that people in the community used them as the first points of contact for primary health care and 75% (410/547) stated they had not received any COVID-19 training or information directly from the government. Instead the CHWs had obtained basic information about handling COVID-19 cases through informal channels such as social media. Despite the lack of formal training, CHWs carried out their regular duties (exposing themselves and their families to the risk of infection) and their work hours increased substantially.

Certification in community health education by the National Institute of Open Schooling created a potential livelihood for CHWs. They became eligible to deliver an expanded range of national and state health services on behalf of the government, such as: (i) awareness campaigns about epidemics and communicable diseases like tuberculosis; (ii) prevention, screening and referral
for noncommunicable diseases such as diabetes; and (iii) screening for basic mental health, oral, and ear, nose and throat conditions. Moreover, the introduction of COVID-19 training and remuneration on a per-case basis not only supplemented their income, but also better equipped them to handle COVID-19 outbreaks in the community. In addition, the participation of CHWs helped ease the strain on frontline medical workers who were struggling to cope with multiple COVID-19 outbreaks. More broadly, the availability of trained personnel ready to take part in different projects augmented the capacity of the public health-care infrastructure and brought services closer to the community.

A survey of 102 CHWs in the districts of Patna and Vaishali in Bihar carried out in June 2021 after the introduction of COVID-19 training found that 80% (81/102) were satisfied that their training needs were being met and that they were receiving information from reliable sources. In addition, a survey of 16 primary health centres in Patna and 11 primary health centres in Vaishali carried out in June 2021 reported that the average number of people with COVID-19 symptoms referred to each centre by CHWs increased from 5 per day before COVID-19 training to 15 per day after. To cater for the increased number of referrals from rural districts, the Bihari government expanded the capacity of dedicated COVID-19 isolation and treatment centres in each district.26 Once CHWs were incorporated into the mainstream health system, they were able to help deliver services in rural areas through multiple channels, as illustrated in Fig. 2.

Discussion

The mobilization of rural CHWs by the Bihari government during the second wave of the COVID-19 pandemic helped ease the pressure on a stressed health-care system and improved its preparedness for future outbreaks. However, the process of inducting and training CHWs and implementing safety measures for them could have started earlier after the first COVID-19 wave. By the time infections spiked in rural areas during the second wave, many CHWs had already reduced their activities and scaled back door-to-door visits due to a lack of information, training and protective equipment.

Creating a training structure for CHWs across the whole of Bihar was complicated by: (i) the geographical spread of CHWs; (ii) the need to exchange information with a large number of health workers; and (iii) the limited availability of trainers and training venues. The Bihari government tackled these logistical issues and quickly delivered the COVID-19 training programme by taking advantage of the Ayushman Bharat’s primary health centre infrastructure and the community health education certification programme provided by the National Institute of Open Schooling. In particular, the use of primary health centre buildings and doctors to deliver training (both in person and virtually) and the existence of National Institute of Open Schooling certification data on CHWs trained at primary health centres were crucial for streamlining the implementation of COVID-19 training without adding overhead costs.

The Bihari government intends to approve a proposal to merge the COVID-19 training module with the National Institute of Open Schooling’s community health education certification programme for future participants. This change would ensure that the expansion of the COVID-19 training programme is sustainable because more health workers will be able to enrol and gain certification. Moreover, extra costs would be minimal for government because the certification programme is primarily funded by registration fees for the course and examination and because training will make use of existing primary health centre resources (i.e. doctors and venues).

Integrating the training given by central government to accredited social health activist workers with the training given by state governments to unaccredited CHWs would create parity in the training and remuneration received by these two categories of health worker. As the demarcation between accredited social health activist workers and other CHWs becomes more blurred, a larger pool of health workers with common training and incentives could be created. Additionally, once they have received training through the Bihari government, CHWs could aspire to secure salaried jobs in health and wellness centres established by the Indian government in its Ayushman Bharat programme. In places like Bihar, where there is a large rural population and limited availability of doctors, it is essential that CHWs receive training and are integrated into the existing health-care system where they can help increase the reach of public health care and contribute to the fight against future waves of the COVID-19 pandemic.

Competing interests: None declared.
Training Community Health Workers for COVID-19 in Bihar, India

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Purpose

To report on the experiences undertaken in the state of Bihar, India, regarding the implementation of a training program for Community Health Workers (CHWs) to fight COVID-19.

Methods

In May 2021, during the second wave of the COVID-19 pandemic in India, the government of Bihar launched a one-day training program for CHWs on COVID-19 in government primary health centers. The CHWs were trained in the execution and documentation of COVID-19 activities and rewards were given to the CHWs who completed the training.

Results

A total of 15,000 CHWs participated in the program, and 30,000 others registered. According to the program, 80% (81/102) of the CHWs were satisfied with the training and felt that they had received reliable information.

Conclusion

This training program successfully thrusted CHWs to fight COVID-19, enabling them to effectively perform their duties. Further, the government plans to conduct similar training programs for other health emergencies.
Resumen

Formación de los agentes de salud comunitarios en la contención de la COVID-19, India

Objetivo Informar de las experiencias en Bihar, el estado más densamente poblado de la India, sobre la aplicación de un programa del gobierno estatal para formar a los agentes de salud comunitarios (ASC) con el fin de controlar la pandemia de la coronavirus de 2019 (COVID-19) en una población de 128 millones de personas, en su mayoría de zonas rurales.

Métodos En mayo de 2021, durante la segunda oleada de la pandemia de la COVID-19 en la India, el gobierno de Bihar puso en marcha un programa de formación sobre la COVID-19 de un día para los ASC de las zonas rurales, sin acreditación, que acababan de terminar un curso de educación de salud comunitaria del Instituto Nacional de Enseñanza Abierta. Gracias a la utilización de los edificios de los centros de salud primaria y de los médicos para impartir la formación sobre la COVID-19 y a la existencia de datos de certificación de los ASC que habían participado en el curso de educación de salud comunitaria, se agilizó la ejecución y se minimizaron los costes. Después de la formación sobre la COVID-19, el gobierno de Bihar pagó a los ASC como personal de primera intervención y atención de la COVID-19.

Resultados En total, 15 000 ASC de Bihar completaron el programa de formación sobre la COVID-19 en 2021 y otros 30 000 se inscribieron. Una encuesta realizada a los ASC tras el inicio de la formación sobre la COVID-19 reveló que el 80% (81/102) estaban satisfechos con la formación y opinaban que estaban recibiendo información de fuentes fiables.

Conclusión La formación y la movilización de un grupo de ASC ayudó a aliviar la presión sobre un sistema sanitario rural sometido a tensión en Bihar y mejoró su preparación para futuros brotes de la COVID-19. El éxito del programa de formación ilustra cómo las iniciativas locales pueden ayudar a subsanar las deficiencias del personal sanitario y ampliar el alcance de la atención sanitaria pública en las zonas rurales, además de mejorar la contención de la COVID-19.

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