



REGIONAL RESOURCE TRAINING CENTRE PROGRAM

# IMPROVING THE QUALITY OF COMPREHENSIVE EMERGENCY OBSTETRIC AND NEWBORN CARE (CEmONC) SERVICES

Clinical Mentoring for doctors and healthcare  
teams in First Referral Units

# LIST OF ABBREVIATIONS

|               |   |
|---------------|---|
| <b>CEmONG</b> | Comprehensive Emergency Obstetric and Newborn Care            |
| <b>CHC</b>    | Community Health Centre                                       |
| <b>CME</b>    | Continuing Medical Education                                  |
| <b>CMO</b>    | Chief Medical Officer   |
| <b>CMS</b>    | Chief Medical Superintendent                                  |
| <b>DH</b>     | District Hospital   |
| <b>FOGSI</b>  | Federation of Obstetric and Gynaecological Societies of India |
| <b>GoUP</b>   | Government of Uttar Pradesh                                   |
| <b>HoD</b>    | Head of Department  |
| <b>HPD</b>    | High Priority District  |
| <b>IAP</b>    | Indian Academy of Paediatrics                                 |
| <b>IHAT</b>   | India Health Action Trust                                     |
| <b>MC</b>     | Medical College   |
| <b>MMR</b>    | Maternal Mortality Ratio                                      |
| <b>OSCE</b>   | Objective Structured Clinical Examination                     |
| <b>PW</b>     | Pregnant Women  |
| <b>RRTC</b>   | Regional Resource Training Centre                             |
| <b>TOT</b>    | Training of Trainers  |
| <b>UP TSU</b> | Uttar Pradesh Technical Support Unit                          |
| <b>UP</b>     | Uttar Pradesh   |

# BACKGROUND

Uttar Pradesh (UP) is India's most populous state with a population of roughly 235 million accounting for approximately one-sixth of India's population<sup>1</sup>. Maternal, neonatal, infant and child mortality rates are substantially higher in UP than the India average. The maternal mortality ratio (MMR) in UP has reduced from an estimated 285 per 100,000 live births for the period 2011-13<sup>2</sup> to 167 per 100,000 live births for the period 2018-20<sup>3</sup>. A key strategy to reduce maternal and newborn deaths is ensuring the presence of a skilled birth attendant for every delivery, including normal labour and those requiring emergency care for complications. Planning and preparing mothers for institutional delivery at a facility that can manage complications that are detected during the antenatal period and that occur during childbirth is a critical activity to ensure safe motherhood and childbirth. Strengthening the core competencies of doctors and healthcare teams in the First Referral Units<sup>4</sup> (FRUs) in UP to ensure the quality of Comprehensive Emergency Obstetric and Newborn Care (CEmONC) services is therefore a critical activity to improve the maternal and newborn health outcomes.

# REGIONAL RESOURCE TRAINING CENTRE PROGRAM

Uttar Pradesh Technical Support Unit (UP TSU) implemented by University of Manitoba in partnership with India Health Action Trust (IHAT) assisted the Government of Uttar Pradesh (GoUP) in developing this initiative called 'Regional Resource Training Centre' or RRTC program. Under this program, clinical faculty from government medical colleges conduct training, clinical mentoring and continuing medical education for government doctors (MBBS and Specialist Doctors) and healthcare teams focused on the delivery of CEmONC services in FRUs. Initially, four and subsequently eight medical colleges were identified as "Regional Resource Training Centres (RRTC)", to cater to FRUs in 25 High Priority Districts (HPDs) of UP. The successful rollout and encouraging response from the government, resulted in the scaling up of this initiative to all 75 districts, with 16 medical colleges currently identified as RRTC.



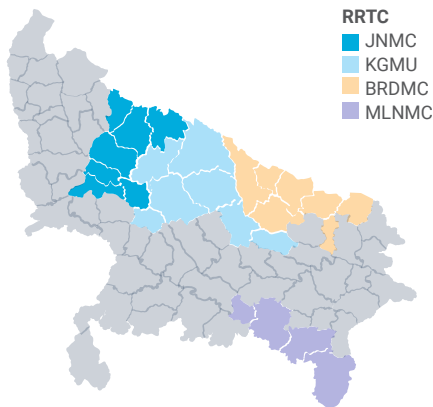
<sup>1</sup>Matra Evam Shishu Swasthya Sanrakshan Abhiyan-2015, National Health Mission (<http://upnrhm.gov.in/Home/MCHCampaign>)

<sup>2</sup>The MMR Bulletin 2011-2013 ([https://censusindia.gov.in/vital\\_statistics/mmr\\_bulletin\\_2011-13.pdf](https://censusindia.gov.in/vital_statistics/mmr_bulletin_2011-13.pdf))

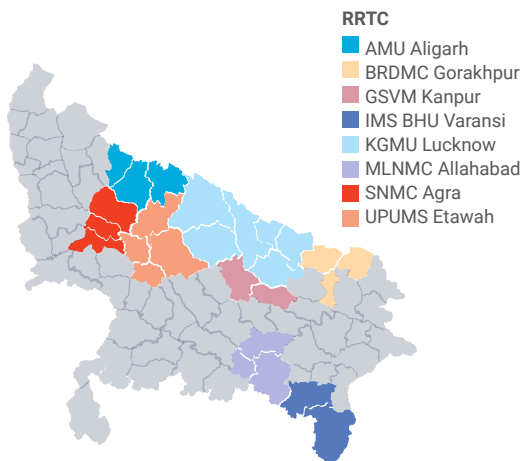
<sup>3</sup>Special Bulletin on Maternal Mortality in India 2018-20 (<https://censusindia.gov.in/nada/index.php/catalog/44379>)

<sup>4</sup>Health facilities providing comprehensive emergency obstetric and newborn care services including deliveries by Caesarean section surgery and blood transfusion services are designated as First Referral Units in India

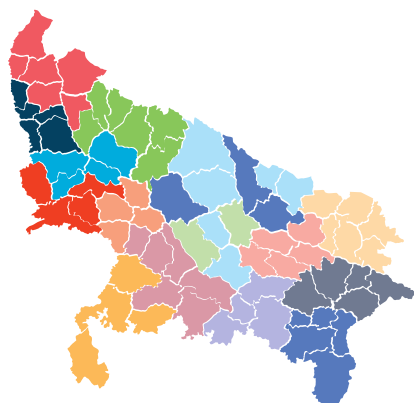
## Milestones of the RRTC Program: From Inception to Scale-up



Master Mentors: 48 | Total Doctor Mentored & Trained: 220



Master Mentors: 122 | Total Doctor Mentored & Trained: 855



Master Mentors: 268 | Total Doctor Mentored & Trained: 947

- Government Institute of Medical Sciences, Noida
- Sarojini Naidu Medical College, Agra
- Shri Ram Murti Smarak Institute Of Medical Sciences, Bareilly
- Jawaharlal Nehru Medical College, AMU, Aligarh
- Lala Lajpat Rai Memorial Medical College, Meerut
- Maharani Laxmi Bai Medical College, Jhansi
- Institute of Medical Sciences BHU, Varanasi
- Government Medical College & Super Facility Hospital, Azamgarh
- Uttar Pradesh University of Medical Sciences, Saifai, Etawah
- Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow
- King George's Medical University, Lucknow
- Baba Raghav Das Medical College, Gorakhpur
- Mahamaya Rajkiya Allopathic Medical College, Ambedkarnagar
- Moti Lal Nehru Medical College, Allahabad
- ERA's Lucknow Medical College & Hospital
- Ganesh Shankar Vidyarathi Memorial Medical College, Kanpur
- Medical Colleges (16)

Table 1: RRTC Program – Summary Description of Activities

### Induction of Master Trainers

**What:** Medical College Faculty oriented to use simulation exercises for skills listed in GoI CEmONC curriculum

**Where:** At a Medical College Identified as a Centre of Excellence

**For:** For Medical College Faculty

**Duration:** 2 days

### Regional Training

**What:** Specialist and general duty doctors undergo skills-based training using mannequins and simulation exercises

**Where:** At the RRTC medical college

**For:** FRU doctors

**Duration:** 2-3 days

### Mentoring Visits

**What:** Medical College Faculty visit the FRU to enhance skills. They use one-to-one objective structured clinical examination (OSCE) and conduct drills simulating emergency situations involving the FRU healthcare team.

**Where:** At the FRU

**For:** FRU doctors

**Duration:** 1 days

### Continuing Medical Education

**What:** Specific topic-wise skills-based training for FRU doctors scoring <70% during OSCE.

**Where:** At the RRTC medical college/conducted virtually/in-person

**For:** Newly recruited or those who missed previous training sessions

**Duration:** 1-2 days



### Regional Training

Regional Skills-based training using mannequins and simulation exercises for FRU doctors, conducted at RRTC medical college for a period of 2-3 days.



### Mentoring Visits

Medical College Faculty visit the FRU to enhance skills using one-to-one OSCE and drills involving healthcare teams.



### Continuing Medical Education

Specific topic-wise skills-based training for FRU doctors scoring <70% during OSCE, newly recruited or those who missed previous training sessions for a period of 1-2 days.

During mentoring visits, it was found that most non-RRTC trained doctors and few RRTC-trained doctors had a low level of technical scores. Gaps in knowledge were identified using objective structured clinical examination (OSCE) checklists for standard treatment protocols of maternal complications management. Although they were mentored onsite, a need was felt to enhance their knowledge, skills and professional performance through separate capacity building sessions. Thus newly recruited doctors, those who were absent for previous sessions and those who scored less than 70% in the OSCE assessment were re-invited to Continuing Medical Education sessions (CME) conducted by the Medical College either in-person or virtually.

## THE PROCESS

### STEP 1

#### Induction training

Medical College Faculty from Departments of Obstetrics, Anaesthesia, Paediatric and Public Health are oriented to familiarise them with Government of India (GoI) guidelines and ensure that there is uniform messaging when they communicate these guidelines to the FRU doctors.

### STEP 2

#### Establishment of Skill lab at Designated Medical Colleges for RRTC Program

Objectives:

- To provide an opportunity for doctors and nurses to learn and practice skills essential for better management of maternal and neonatal complications that can be fatal
- To demonstrate facility level preparedness for emergency situations by packaging and describing essential life-saving drugs, supplies and equipment.
- To promote better coordination and teamwork between Specialists/Medical Officers and Staff Nurses within First Referral Units (FRU).

### STEP 3

#### Regional Training at each Medical College

All the Government of Uttar Pradesh (GoUP) medical officers including specialist obstetricians and paediatricians posted in FRU health facilities undergo a 2-3 days training at the respective RRTC medical college.



## STEP 4

### Clinical Mentoring visit / Online mentoring by medical college faculty of FRU doctors:



#### Pre-mentoring visit:

RRTC Coordinators from IHAT conduct a facility assessment and create a Facility profile that describes the type of facility, its out-patient and in-patient load, proportion with complications, occurrence of any maternal or new-born death in previous year/quarter, the human resources status and contact numbers of persons responsible for the administration and clinical services of the facility.



#### Mentoring Visit:

A multi-specialist team of faculty members from RRTC medical college make onsite in-person visits to the FRU health facility for mentoring of doctors in management of complications during pregnancy and childbirth and new-born care. During site visits, faculty assess the patient flow and care protocols within out-patient and emergency departments and the operation theatre, review registers and records, identify gaps in knowledge of doctors using objective structured clinical examination (one to one OSCE) checklists, conduct simulations of emergency situations or drills with a team of doctors and nurses, discuss their observations with the participants and debrief the Chief Medical Officer/Surgeon. They record and compile facility (availability and functionality of equipment and infrastructure) and technical scores (OSCE). Medical College faculty visit as teams of Gynaecologist, Community Medicine, Paediatrician and sometimes are accompanied by an Anaesthetist. Mentoring visits are conducted once in a quarter.



#### Post-mentoring:

OSCE scores are analysed and doctors scoring less than 70% are identified. These doctors are clubbed with those who are recently recruited or could not attend previous regional training or mentoring and invited for the Continuing Medical Education catch-up session. RRTC coordinators analyse and track Facility scores with the facility in-charge to address the gaps.

## STEP 5

**CME Refresher Sessions** are conducted at each RRTC Medical College, facilitated by the RRTC faculty and UP -TSU team. Participants in the CME sessions include doctors who scored <70% and newly recruited doctors posted at the FRUs or absentees at regional training and/or during faculty mentoring visits.

**Coordination Platform:** Once in three-six months, the medical college faculty, chief medical officers and Superintendents from District Hospital and First Referral Units and staff from the Directorate meet to discuss and deliberate on how the gaps identified can be addressed in a timely manner with everyone's involvement. This platform is chaired by chaired by the Principal Secretary, Health or the Mission Director, National Health Mission, and co-chaired by the Director, Ministry of Health and Family Welfare.

Figure 1: Unique Features of RRTC Program

## RRTC UNIQUE FEATURES



### Inter-Departmental Collaboration

Collaboration between Dept of Medical Education and Dept. of Health & Family Welfare



### Collective Involvement

Collective involvement of National Health Mission, Directorate and Dept. of Medical Education and Health & Family Welfare to address gaps



### Referral Case Management

Referral case management through WhatsApp Groups due to improved communication between Medical College faculty & FRU doctors



### Competency Enhancement

Competencies enhanced using simulation on mannequins for skills & drills for teamwork.



### Onsite Mentoring

Onsite Clinical Mentoring

## KEY TOPICS COVERED



### Anaemia

Detection, classification, management (Iron Sucrose infusion and Blood Transfusion)



### Haemorrhage

Measurement and management of Antepartum and Post-partum Haemorrhage (Medical, Compression, surgical and newer techniques)



### Severe Preeclampsia / Eclampsia

Management (Use of Magnesium Sulphate and Antihypertensive drugs)



### Prolonged/Obstructed Labour

Induction of labour, Assisted Vaginal Delivery (Application of Outlet Forceps & Ventouse) and C-section



### Others

Breech Delivery, Shoulder Dystocia, Twins, Premature Rupture of Membranes, Pre-Term labour, Shock, Cord Prolapse and Foetal Distress.



# VIRTUAL TRAINING DURING COVID-19

The RRTC program planned for onsite in-person CME at Medical Colleges. However, during the COVID-19 pandemic, the CME sessions were conducted online, using the Zoom platform. A resource package for online CME that included case studies, presentations and maternal complications with videos and online demonstration by medical college faculty was developed for this purpose.

## 1. Implementation Steps:

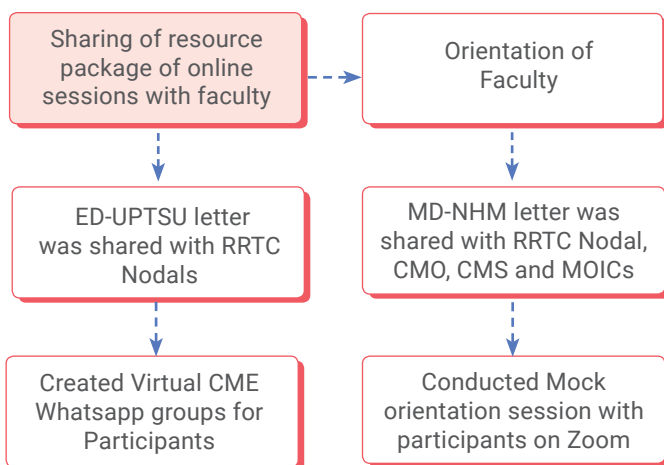
- + Contact Nodal Office at Medical College
- + Issue letter to Chief Medical Officer (CMO) and Chief Medical Superintendent (CMS) of districts
- + List Medical Officers/Specialists from each district
- + Finalize the list of participants for the CME from each district with CMO/CMS

- + Create batches of 10 participants for each online CME session
- + Ensure that the resource package for these sessions including case studies, videos and checklists are ready and can be displayed clearly on the zoom platform.

**2. WhatsApp groups** are created to share online session links, topic-wise participant lists, date and time for each session or topic and other relevant information.

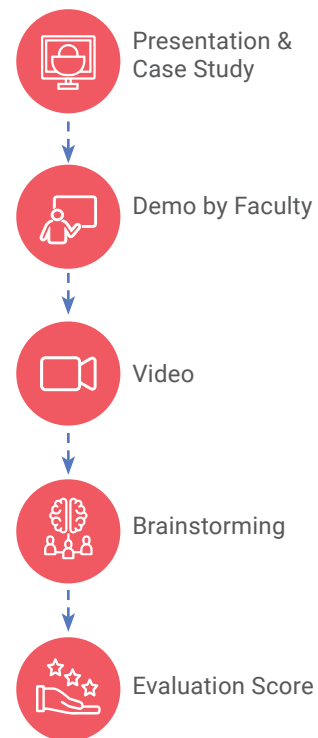
**3. Evaluation (Scoring):** One-to-one OSCE scoring of all the doctors during CME is done using the OSCE checklist.

Rollout of Online Sessions



Flow of virtual mode of CME sessions

## The Process of Virtual Mode





# FACILITY EVALUATION - MENTORING VISITS

## Facility Score (F)

- + Assessed during facility rounds
- + Based on assessment of ANC/OPD, LR, OT, PNC, Availability of CEmOC Functions, etc.

## Technical Score (T)

- + Assessed by RRTC Faculty
- + Based on OSCE Score of doctors calculated during one-on-one mentoring

## Drills Score

- + Assessed by RRTC Faculty
- + Based on scored received when assessed on checklists for drills/emergency.

## Average FRU Score

- + Average of Facility and Technical Score
- + Facilities scored as good > 70% Satisfactory 50-70% Need Improvement <50%

## RESULTS

- + FRU doctors skilled to manage complications of pregnancy improved in the 25 HPD as evidenced with higher proportion of doctors obtaining higher OSCE scores (Figure 2 and 3)

### Doctors Mentored by RRTC with OSCE scores

Figure 2: Total number of doctors mentored in 3 rounds

Technical scores of doctors mentored in R1(July'19-Sep'19), R2 (Oct'19-Dec'19) & R3 (Jan 2020 - June 2021)

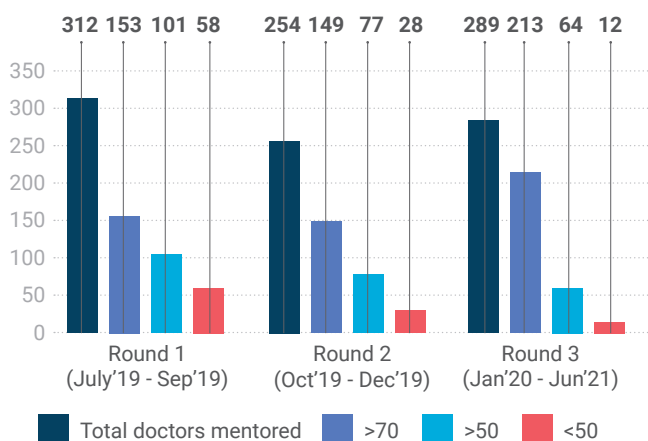


Figure 3: Percentage Comparison of doctors mentored in 3 rounds

% Comparison of Round 1(July'19-Sep'19) and Round 2 (Oct'19-Dec'19) & R3 (Jan2020-June2021) Technical scores of doctors

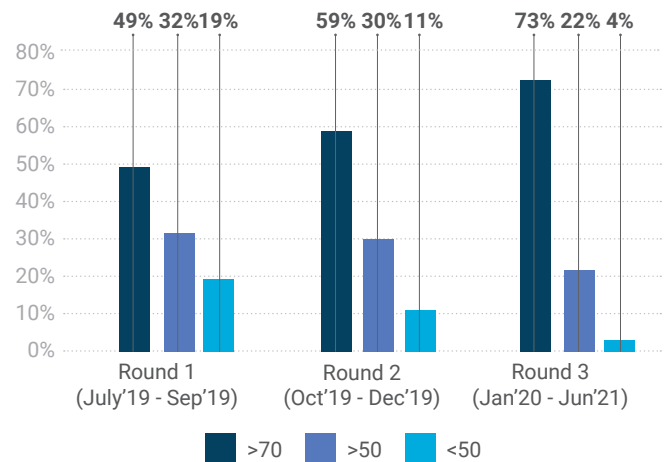
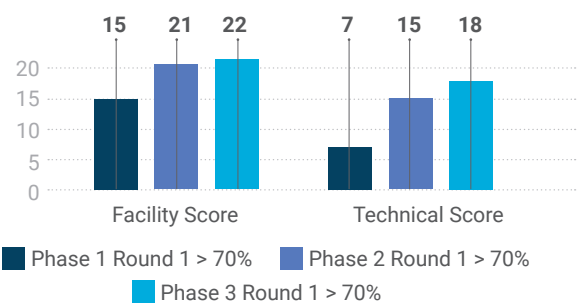


Figure 4: Comparison of Facility and Average Technical Score of 25 DHs of 25 HPDs [Phase 1, 2 & 3 (2017- 2023)]



- There are 3 facilities whose facility score is <70%
- Out of 3 facilities 2 are converted into Medical College
- There are 7 facilities whose technical score are <70%

- + Enhanced confidence of health facility doctors to initiate blood transfusion or IV Iron Sucrose to severely anemic PW.

Figure 5: Percent of severe anemic pregnant women who received iron-sucrose

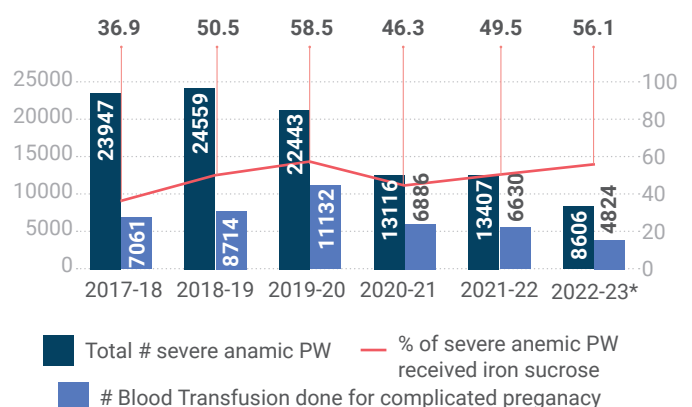
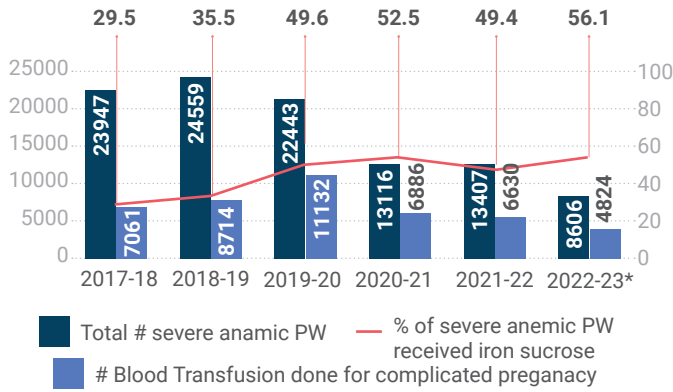
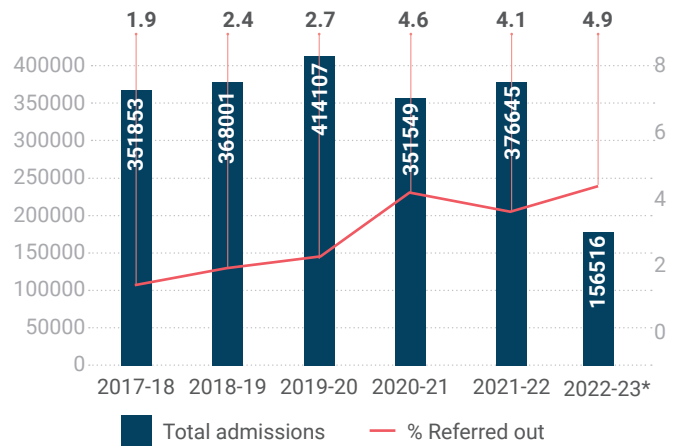


Figure 6: Percent of severe anemic pregnant women who received Blood Transfusion



\*data is till Dec 2022

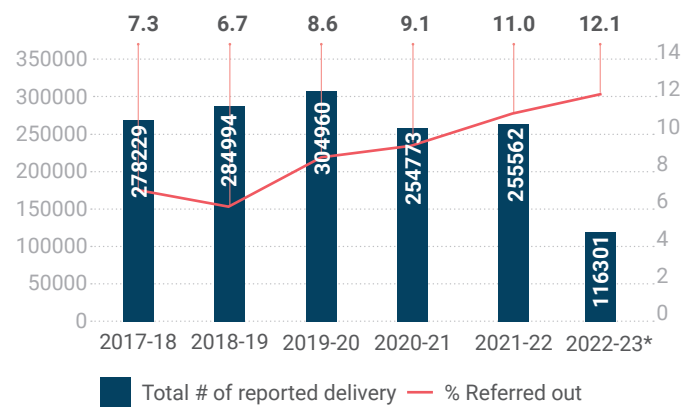
Figure 7: Percent of pregnant women referred out against total admission



+ Referral linkage with Vertical Integration:

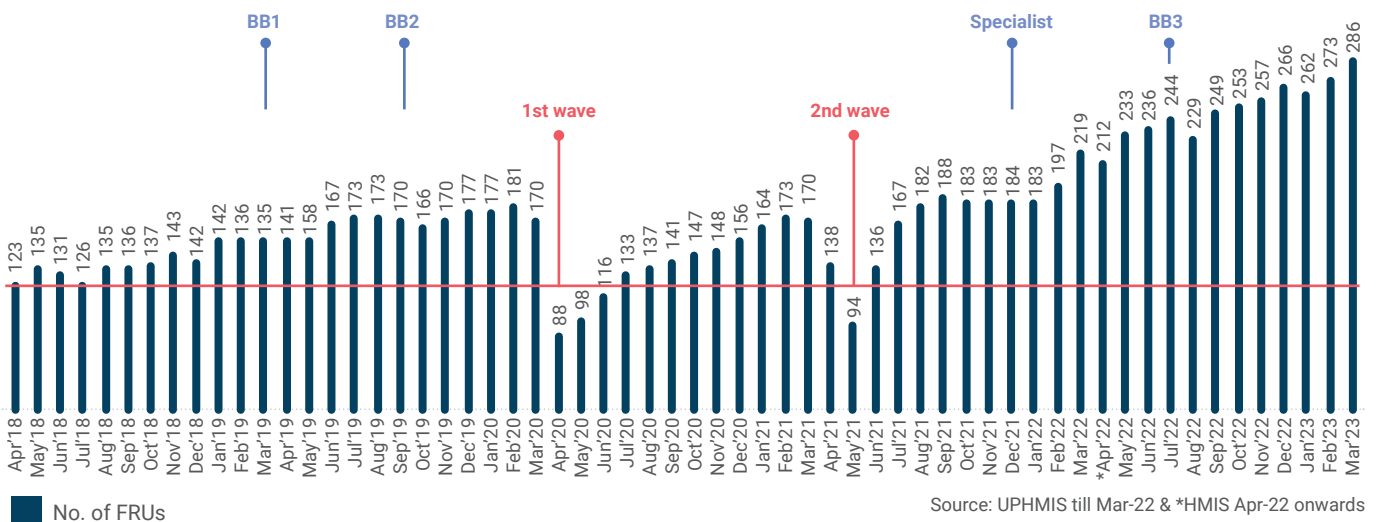
- A WhatsApp group was created to include all the FRUs with faculty members of each respective RRTC medical college. This led to more efficient communication, facility preparedness and patient care during referral from the FRU to the tertiary level medical college hospital.
- The better management of complications of pregnancy at FRUs resulted in improved pre referral management, reduced delays in reaching and in response-time at the referral facility and reduced load on medical colleges.

Figure 8: Percent of C Section rate



The eight medical colleges previously involved with the RRTC program now provide hand-holding supportive supervision to the new medical colleges activities for the Regional ToT, mentoring visits and CME.

Figure 9: CHC FRU Health facilities conducting at least 1 C Section



Source: UPHMIS till Mar-22 & \*HMIS Apr-22 onwards

# ACTIVITIES FOR SCALING UP THE RRTC SYSTEM

| Sr No | Activity   | Who is involved   | Number  | Date Completed          |
|-------|--|---|---|-------------------------|
| 1     | Orientation and coordination workshop with 16 Medical Colleges   | Principal/Vice- Chancellor/ HoDs & Nodal Faculty from each Medical College                            | 73  | 21 Dec 2021             |
| 2     | RRTC Service Agreement signed by both parties  | Medical Colleges (RRTC)   | 16  | Dec- Mar 2022           |
| 3     | Orientation of Nodal faculty from each Medical College   | Heads of Department from Obstetrics, Paediatrics, Community Medicine, etc.,                           | 16  | Feb - Mar 2022          |
| 4     | Resource Package Revision Workshop   | Faculty from the above departments  | 48  | 3rd & 4th Mar 2022      |
| 5     | Induction workshop at KGMU Lucknow   | Faculty Master Trainers from different RRTC   | 7 Batches - 268 Faculties participated  | May - July, 2022        |
| 6     | Orientation of Nodal faculty on Regional ToTs (On-line)  | Medical College Faculty   | 16  | June - July 2022        |
| 7     | Establishment of RRTC Skill labs at 16 Medical Colleges  | RRTC coordinators and Nodal faculty   | 16  | May – Jul 2022          |
| 8     | Faculty Supportive supervision of old medical colleges during Regional TOT, Mentoring Visit & CME of new medical colleges  | RRTC Faculty  | 16  | Jul – Apr 2023          |
| 9     | Regional ToTs (3 at each) at Medical Colleges respectively for specialist and MBBS doctors of District Hospital area wise. | Public Sector Doctors from DH's and FRUs.   | 43 batches completed in which 481 doctors trained.  | Jul – Oct 2022          |
| 10    | Faculty Mentoring visit (3 rounds) at District Hospital as per geography.  | Faculty from Obstetrics, Paediatrics, Community Medicine  | 73 mentoring visits completed in which 466 doctors mentored   | Oct – Jan 2023          |
| 11    | Creation of District pool of trainers for strengthening/ mentoring of CHC-FRUs   | Experienced Doctors from District Hospitals   | 375   | Jan – Mar 2023          |
| 12    | CME after every round of mentoring at each Medical College (ongoing).  | Doctors from DH/FRU who have scored <70%, were newly recruited or missed previous training/mentoring. | 18 batches completed in which 152 doctors trained   | Feb – Apr 2023          |
| 13    | Development of RRTC Master Pool of Trainers for sub-district level training.   | Planning in process   | Pools of Trainers envisioned for district level, drawn from DH, new MC, private sector hospitals and associations (FOGSI, IAP, etc.,) | Conceptualisation phase |

## RRTC SPREADING ITS WINGS

The RRTC program was recognized by Government of India at Best Practices Summit at Kaziranga in 2018. The Government of Madhya Pradesh had reached out to UP TSU to initiate the RRTC program in Madhya Pradesh. This has been taken up and currently three Medical Colleges have been nominated as RRTC for the mentoring model in the state.

**Copyright:** India Health Action Trust

**Disclaimer:** This Brief may be used for dissemination of information on public health programs. Parts of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or any information storage and retrieval system, with permission in writing from IHAT.

**India Health Action Trust**

S&S Elite, 2nd Floor,  
No. 197, 10th Cross, CBI Road, Ganganagar,  
Bengaluru – 560032 Karnataka

Phone: +91 80 2340 9698

Email: [contactus@ihat.in](mailto:contactus@ihat.in)

Website: [www.ihat.in](http://www.ihat.in)

**Uttar Pradesh Technical Support Unit**

India Health Action Trust

404, 4th Floor

Ratan Square No. 20-A

Vidhan Sabha Marg

Lucknow-226001

Uttar Pradesh, India

Phone: +91-522-4922350 / 4931777

**Uttar Pradesh Technical Support Unit is a Bill and Melinda Gates Foundation funded project and is a joint collaboration of UoM and IHAT.**