Real-Time Monitoring: Tools for Critical Decision-Making

With the outbreak of COVID-19 in early 2020, the importance of creating Real-Time Data Management (RTM) systems that are resilient to emergency situations became critical. Creating learning and development platforms for Aspirational districts, district gap analysis and data visualization, and development of in-house capacities for data were among the key priorities.

A Community-Based Monitoring (CBM) mechanism, planned, conceptualized and designed by UNICEF, was established as part of the United Nations response, to better understand the impact of the COVID-19 pandemic on marginalized and vulnerable families. UNDP, UNFPA and other UN agencies participated in the finalisation of the CBM design. The mechanism engaged 13 civil society organizations in 12 districts of seven states to collect data and network with the cohort of families in four waves (rounds) from June until December 2020.

Cross-sectional analyses as well as understanding trends over time has allowed a comprehensive assessment of the impact of the COVID-19 pandemic on the socio-economic condition of marginalized families. Wave-3 data, collected during October/November, indicated that the economic condition of people, self-reported as 'bad' was still at least 40 per cent higher than that in the pre-lockdown period, though improvement had been reported since August/September (Wave-2). Similarly, the average monthly income remained lower than what was received by the earning members of the family prior to the lockdown. Health and nutrition services had started functioning in most areas and at the time of writing, the fourth and final round of CBM data has been completed and used for programme support and decision-making.

Some preliminary results related to the COVID-19 vaccine showed that though around three-quarters of the families under study were aware of the COVID-19 vaccine and its necessity, only 66 per cent of heads of families felt that the vaccine was "very safe" while the remaining population were "not very sure". The families identified three priority groups to receive the vaccine as being

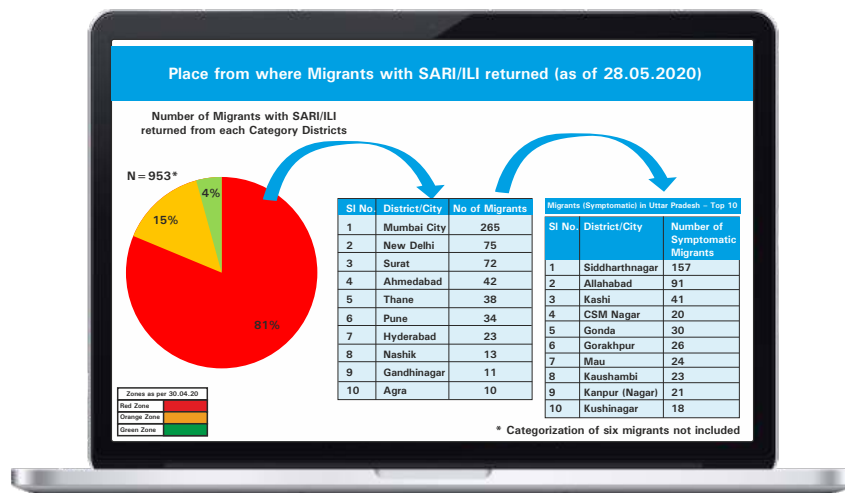**Elderly**

Children below 18 years
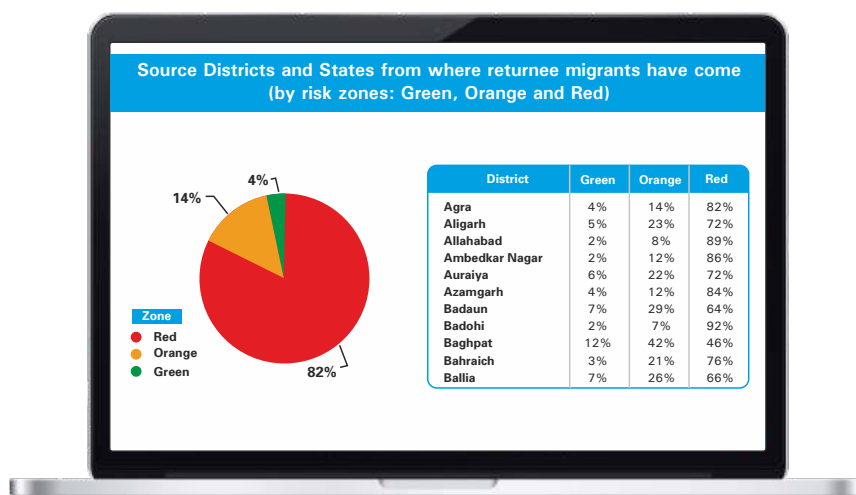
Health service providers

CBM results were shared with the concerned states and districts with a limited array of recommendations, in the form of data factsheets with interpretations on policy and implementation challenges. The information was also used by UNICEF and government for developing or fine-tuning communication strategies.

UNICEF also supported the piloting and deployment of several modelling tools which were snowballed to the states for planning and forecasting the use of commodities and resources for COVID-19 response. Some of the initiatives undertaken are discussed below:

- UNICEF used the Open Data Kit (ODK) resource hub, Management Information System (MIS) data and dashboard to support the epidemic response for various state governments:
  - » **Rajasthan - To plan the containment strategy.**
  - » **Uttar Pradesh- 3,135,826 migrants were line listed and counselled on the preventive measures and quarantine protocols and subsequently linked to the COVID-19 surveillance system. 8,414 migrants with symptoms of Influenza Like Illness/Severe Acute Respiratory Infections (ILI/SARI) were identified, nasopharyngeal swabs taken, and COVID-19 positive among the samples collected were isolated and treated in designated COVID-19 hospitals.**

Place from where Migrants with SARI/ILI returned (as of 28.05.2020)

Number of Migrants with SARI/ILI returned from each Category Districts

N = 953*

Sl No.	District/City	No of Migrants
1	Mumbai City	265
2	New Delhi	75
3	Surat	72
4	Ahmedabad	42
5	Thane	38
6	Pune	34
7	Hyderabad	23
8	Nashik	13
9	Gandhinagar	11
10	Agra	10

Migrants (Symptomatic) in Uttar Pradesh – Top 10

Sl No.	District/City	Number of Symptomatic Migrants
1	Siddharthnagar	157
2	Allahabad	91
3	Kashi	41
4	CSM Nagar	20
5	Gonda	30
6	Gorakhpur	26
7	Mau	24
8	Kaushambi	23
9	Kanpur (Nagar)	21
10	Kushinagar	18

Zones as per 30.04.20
Red Zone
Orange Zone
Green Zone

* Categorization of six migrants not included

- **High-risk areas for containment measures were also identified using this data.** Interventions like pooled sampling were implemented in areas with a high concentration of migrants and review of the progress was undertaken on a daily basis at the highest level in the government.

- **Symptomatic returnee migrants were tracked and identified for COVID-19 testing.** In all areas/households where positive COVID-19 cases were reported, containment measures were taken as per standard operating procedures. Districts were categorized as per their vulnerability to COVID-19 and as per the source of returnee migrants' districts into Red, Orange and Green categories.

Source Districts and States from where returnee migrants have come (by risk zones: Green, Orange and Red)

Zone
● Red
● Orange
● Green

District	Green	Orange	Red
Agra	4%	14%	82%
Aligarh	5%	23%	72%
Allahabad	2%	8%	89%
Ambedkar Nagar	2%	12%	86%
Auraiya	6%	22%	72%
Azamgarh	4%	12%	84%
Badaun	7%	29%	64%
Badohi	2%	7%	92%
Baghpat	12%	42%	46%
Bahraich	3%	21%	76%
Ballia	7%	26%	66%

- **Migrant children and pregnant women who were identified were referred to appropriate**
  - » **Immunization**
  - » **Antenatal check-up**
  - » **Institutional deliveries**

Associated with these efforts included building the capacity of staff. Through virtual platforms, approximately **900** District Community Process Managers (DCPM) and Block Community Process Managers (BCPM) were trained on data entry, visualization and use. Around **158,000** Accredited Social Health Activist (ASHA) workers were also trained through the blended methodology of WhatsApp videos and telecalling in Uttar Pradesh.

- In Gujarat, a total of **169,305 healthcare providers were trained on various COVID-19 related guidelines and protocols such as**
  - » **Field surveillance and supervision**
  - » **Clinical management protocol**
  - » **Quarantine and isolation management**

Technical assistance was given to State Institute of Health & Family Welfare (SIHFW) in adopting online platforms like Zoom which helped in resuming the trainings to healthcare providers by establishing a 3-tier system (Training of Trainers (ToT) webinar, medical colleges and district level webinars) for training hosted at the state level.

© UNICEF/UNI343768/Panjwani

Some of the challenges faced due to COVID-19 and measures taken to restore Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH + A) services are discussed below:

- UNICEF supported state governments in carrying out analysis of RMNCH + A service coverage data from Health Management Information System (HMIS) and TeCHO + to understand the impact of COVID-19 on health and mortality and supported the state governments in carrying out analysis of causes of death to understand the proportion contribution of COVID-19 to overall deaths. RMNCH + A analysis from HMIS and TeCHO + software also showed gaps in routine RMNCH + A services and poor service coverage. Further, analysis of various causes of deaths to understand the proportion contribution of COVID-19 to overall deaths showed less than one per cent of mortality due to COVID-19. Both these analyses helped to bring attention back to routine RMNCH + A services.

- UNICEF created dashboards based on the SNCU online software, Sample Registration System (SRS) data and HMIS data. Work was underway with the Government of Tamil Nadu for the roll-out of the RapidPro and WhatsApp bot-based support to Pregnancy and Infant Cohort Monitoring and Evaluation (PICME) for enhancing RMNCH + A programming for around 1,000 days in the post-COVID-19 era.

- UNICEF also advocated incorporating SNCU performance indicators into the Chief Ministers dashboard and provided technical guidance for Application Programme Interface (API) between SNCU MIS and CM dashboard in Gujarat. The advocacy was successful in the following way:

  » State government formed a "No Rotation Policy of SNCU staff" for other departments to decrease the vacancy of SNCU staff which helped in continuing essential services to small and sick newborns admitted in the SNCUs.

  » SNCU review meetings were held with Level 2 (SNCUs) and Level 3 (Neonatal Intensive Care Units (NICUs))care facilities to discuss, understand and resolve issues related to staff, equipment and referrals, based on the analysis and recommendations made by UNICEF.

- Just like other health programmes, the roll-out of ANMOL (ANMOL is an android based application designed for the collection of comprehensive RMNCH + A information) came to a standstill after March 2020 due to the COVID-19 outbreak. UNICEF worked with the Government of India and state governments to take ANMOL training online and successfully launched ANMOL in the three states of Jharkhand, Arunachal Pradesh and Maharashtra. 500 Auxiliary Nursing Midwives (ANMs) participated in the online ANMOL ToT from the states. Special digital tools were used for the trainings, namely, Zoom for video conferencing and Vysor for tablet screen sharing.

© UNICEF/UNI343682/Panjwani

Use of RapidPro Technology - WhatsApp Chat Bot

RapidPro is an open-source technology that allows sending and receiving information using basic mobile phones. RapidPro achieves this two-way communication through three technologies namely:

(i)   Interactive Voice Response (IVR)

(ii)   Messaging platforms like WhatsApp, Telegram, Facebook messenger

(iii) Regular Short Messaging Service (SMS)

This technology can be used for two primary purposes namely information dissemination and data collection.

The information collected through the Chat Bot is utilized to generate periodic reports pertaining to vaccination coverage which in turn, is used to assess the engagement of people with the Chat Bot. In addition to this, refusal related data is utilized to prepare a line listing of beneficiaries refusing vaccination which can be intimated to government officials at the state, district and subsequent lower levels for strategic decision-making activities. The ultimate outcome of roll-out of such Chat Bots is to:

(i)   Improve the quality and efficiency of healthcare service delivery.

(ii)   Increase demand for quality healthcare by increasing awareness in the community.

(iii) Promote a surveillance mechanism for monitoring routine immunization and infectious diseases in children and coverage on a real-time basis as well.

RapidPro WhatsApp Bot

The RapidPro WhatsApp bot was shared with all 41 Aspirational districts to collect information on immunization, RMNCH + A and nutrition services. The response was received from consultants in 31 districts. WhatsApp bot had three sections and the number of questions per section was as follows:
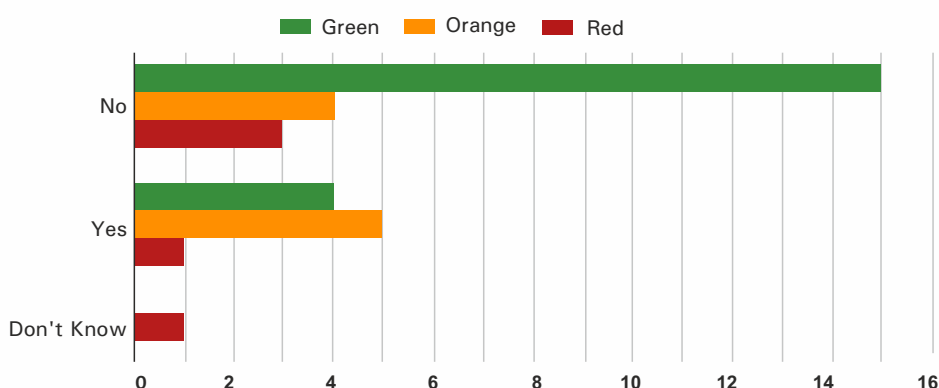
- **Section - 1 Immunization: 5 Questions**

Aspirational District RTM - Wave One - Immunization (Sample Questions)

Continuity of Immunization Services as per the Category of Districts (no. of districts)
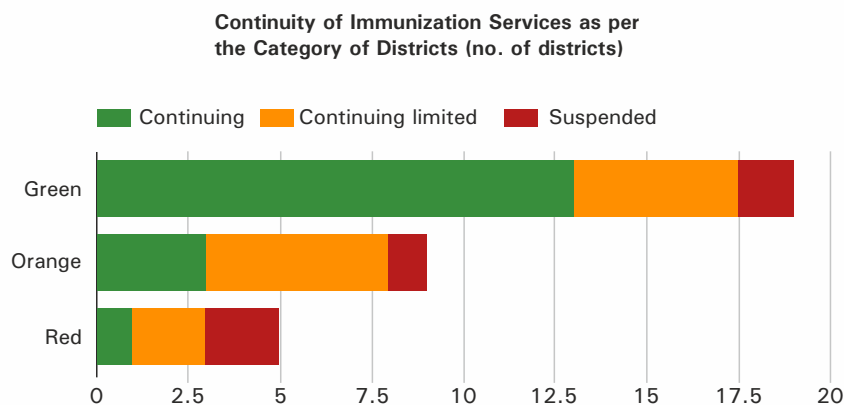
- Overall, service continued in 50% districts
- Across district categorization, service continuity was affected in all categories, however, Red districts were most affected
- Services continued in most of the Green districts (13/19). Out of total 5 Red districts, services suspended in 2 and limited in 2 districts

Is the involvement of managers/supervisors or other immunization staff (NOT vaccinators) in COVID-19 response activities affecting immunization?


- Overall, involvement of managers in COVID-19 response did not appear to affect immunization
- In nearly 50% Orange & 20% Green districts, the manager involvement affected immunization

- **Section - 2 RMNCH + A: 9 Questions**

Aspirational District RTM - Wave One - RMNCH + A (Sample Questions)

In this district, is continuity of RMNCH + A services integrated with the overall COVID-19 response and monitoring plan?

Legend: ■ Green ■ Orange ■ Red

Categories: Yes, No (x-axis: 0 to 20)
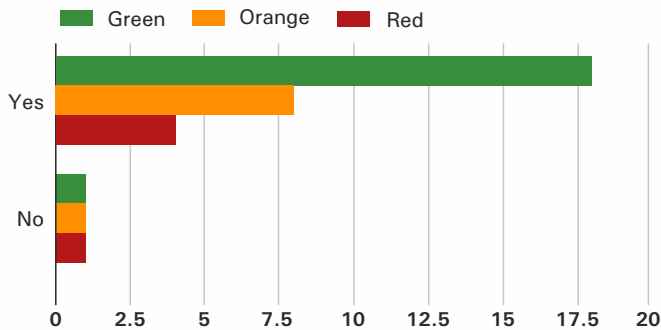
- Majority of districts had RMNCH + A service continuity integrated within overall COVID-19 response
- This was seen across all category of districts

If the answer to previous question is yes, please indicate which is the most likely component that has been impacted?

Legend: ■ Green ■ Orange ■ Red

Categories: HR, Referral, VHNSD, Supplies, Equipment (x-axis: 0 to 7)
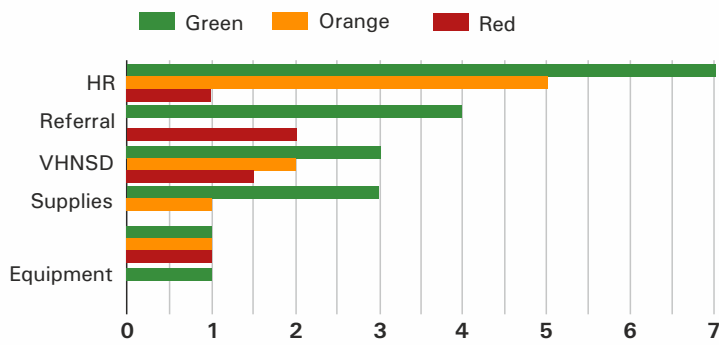
- Overall, Human Resources (HR) was the most impacted component
- In Red districts, referral was impacted most, followed by HR, VHSND, equipment in equal proportions
- Green districts reported HR to be the most impacted, f/by referral services then VHSND & supplies
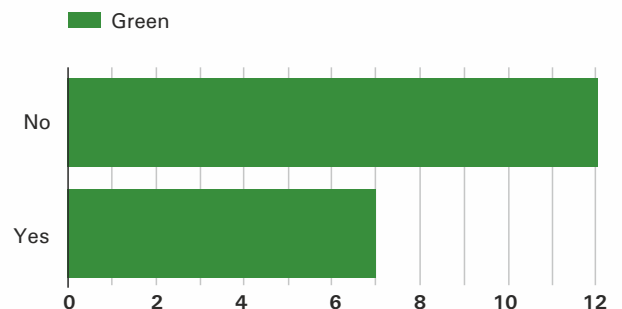
- **Section - 3 Nutrition: 4 Questions**

Aspirational District RTM - Wave One - Nutrition (Sample Questions)

Are Anganwadi Centres currently open in your district?

Legend: ■ Green ■ Orange ■ Red

Categories: No, Yes (x-axis: 0 to 12)
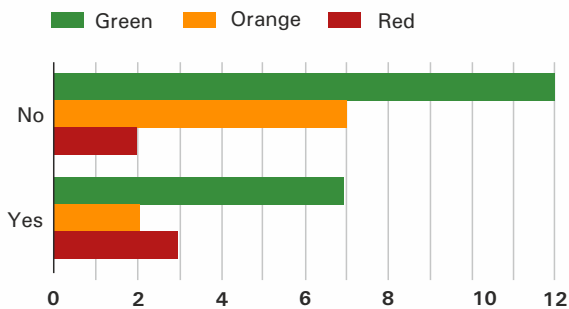
Are Anganwadi Centres currently open in your district? (in Green districts)

Legend: ■ Green

Categories: No, Yes (x-axis: 0 to 12)

- Anganwadi Centres were reported to be closed in nearly 63% (21/33) of the districts
- In Red districts, nearly half AWCs were open and half closed
- In Green districts, only 1/3rd the AWCs were reported to be open

**Wave one of data collection provided insights into the**

- Extent of service disruptions
- Reasons for disruptions
- Human resource availability for routine immunization
- Efforts to monitor disruptions
- Integration of RMNCH + A and COVID-19 response at the district level
- Components most impacted by COVID-19
- Impact on institutional deliveries
- HIV testing of pregnant mothers
- Stigmatisation of healthcare providers

Such information was valuable for planning, forecasting and monitoring COVID-19 response as well as RMNCH + A activities at the district level.

Recently, RapidPro has been adopted by the Field Office of Tamil Nadu in devising a Chat Bot for disseminating COVID-19 vaccination-related information among the general population. In addition, this technology is also being envisaged for promoting RMNCH + A health practices among communities while improving the quality of service delivery as well.

The Chat Bot can be accessed after sending the "Covas" triggering word
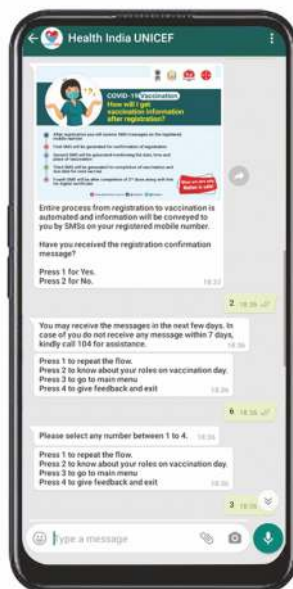
Use of images along with text-based flows for maximum impact
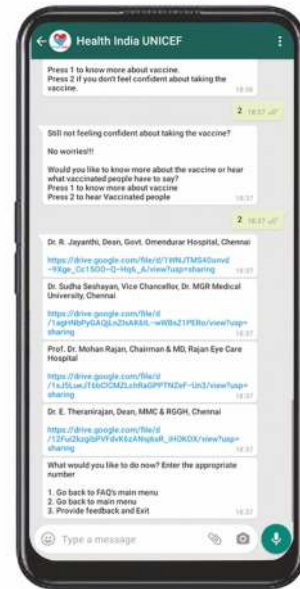
Provision of external links for watching videos is part of the flow

SMNet Chat Bot Initiative

Social Mobilization Network (SMNet) was initiated by UNICEF in Bihar in 2006 to reach every child in remote and hard to reach areas as well as counter the negative rumours about Oral Polio Vaccine. It later expanded to cover monitoring of other health interventions, specifically immunization programmes. The SMNet Chat Bot initiative was started in Bihar in collaboration with UNICEF India Country Office health team and Information and Communication Technology (ICT) team with the following 4-fold objectives:

- To ensure that the field **interventions by SMNet** during the programme planning and implementation are **well documented on daily basis.**
- To ensure **better visibility** of the SMNet intervention at the state level and below.
- To use the **data for action and advocacy** at a higher level.
- To **document the lessons learned** during the programme planning and implementation phase and scale it in another state.

By mid-October 2020, SMNet mobilisers in Bihar were provided orientation on the checklist that had been piloted earlier. The Chat Bot initiative was rolled out in 38 districts and 291 blocks of Bihar from 1 February 2021. Few of the immediate benefits of SMNet Chat Bot are:

- Data captured daily from the SMNet Chat Bot is enabling the Social Mobilization Coordinators (SMCs) and Block Mobilization Coordinators (BMCs) to keep track of their performance and take adequate measures in case of deviation.
- It has ensured real-time data flow on the key SMNet intervention and the data is being used at appropriate forum for advocacy. It is also helpful in disseminating quicker feedback to the BMC during their supervisory rounds.
- Based on the initial success of the Chat Bot in Bihar, the intervention has been scaled-up in Uttar Pradesh where similar SMNet structures exist.

Lessons Learnt

Due to the information overload and misinformation, maintaining focus on what needed to be prioritised was a challenge. UNICEF adapted quickly to the lockdown situation and increased the usage of real-time monitoring mechanisms and BOTS for planning and decision-making for COVID-19 as well as RMNCH+A services. The "new normal" due to COVID-19, necessitated the use of online platforms for programme reviews and routine monitoring. As a result, reviews and monitoring meetings were also done more frequently than normal times.

Key Partners and Funders:

The Rockefeller Foundation

Johnson & Johnson Foundation

© UNICEF/UNI343653/Panjwani