Summer Training at
Immunization Technical Support Unit (ITSU), Public Health Foundation of India (PHFI), Delhi
(April 3 to June 2, 2017)

- **Mission Indradhanush Reporting System**
- **Challenges in new vaccine introduction under UIP**

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2017

INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that **Dr. Shayoni Sen** has undergone summer training in **Immunisation Technical Support Unit, Public Health Foundation of India (PHFI), New Delhi** from **3rd April to 31st May 2017**.

The candidate herself completed the project assign to her during summer training. Her approach to the project was sincere and proactive. This summer training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management.

I wish her success in all her future endeavors.

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To whomsoever it may concern

This is to certify that Ms Shayoni Sen has successfully completed her Internship from 03 April 2017 to 31 May 2017 with Public Health Foundation of India (PHFI). During her internship period, she worked with the "Immunization Technical support Unit (ITSU)" Project.

During the period of her internship programme with us she was found to be hardworking and sincere.

We wish her the very best in all her future endeavours.

For **Public Health Foundation of India**

Working towards a healthier India

Aparajita Roy
Director – Human Resources

ACKNOWLEDGEMENTS

The internship opportunity I had with Immunisation Technical Support Unit (ITSU) was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me though this internship period.

It is my radiant sentiment to place on record my best regards, deepest sense of gratitude to ***Dr Vineet Goyal, Associate Advisor Program Operations Monitoring and Evaluation and Mr Kedar Dash, Associate Advisor Vaccine Informatics*** *for their careful and precious guidance which were extremely valuable for my study both theoretically and practically. They in spite of being extraordinarily busy with their duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project extending during the training.*

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My report might be incomplete without the guidance of my mentor, ***Dr Anoop Khanna*** *who provided me with timely suggestions. Also,* ***Dr Mohan Lal Bairwa*** *who was always ready for support and guidance.*

I am indebted to my family especially my mother ***Mrs Meeta Sen*** *who helped me in every possible way during my training.*

ABBREVIATIONS

UIP: Universal Immunisation Programme

AEFI: Adverse Events Following Immunisation

EPI: Expanded Program of Immunisation

FIC: Full immunisation coverage

HMIS: Health Management Information System

ITSU: Immunization Technical Support Unit

MCTS: Mother and Child Tracking System

MoHFW: Ministry of Health and Family Welfare

RI: Routine Immunization

VPD: Vaccine Preventable Diseases

SEPIO: State Expanded Programme of Immunization Officer

MI: Mission Indradhanush

POME: Program Operations, Monitoring & Evaluation

BCG vaccine: Bacillus Calmette–Guérin vaccine

OPV: Oral Polio vaccine

RVV: Rotavirus vaccine

IPV: Injectable Polio Vaccine

fIPV: Fractional IPV

JE: Japanese Encephalitis

PCV: Pneumococcal conjugate vaccine

ARTICLE I. Contents

PROJECT 1:

"MISSION INDRADHANUSH REPORTING SYSTEM"

ARTICLE II. "MISSION INDRADHANUSH REPORTING SYSTEM"

Section 2.01 Core Concept

Full immunization against preventable childhood diseases is the right of every child. With a view to provide this right to every child, the Government of India launched the Universal Immunization Program (UIP) in 1985, one of the largest health programs of its kind in the world.

To strengthen and invigorate the program and achieve full immunization coverage for all children at a rapid pace, the MOHFW has launched Mission Indradhanush on 25th December 2014 with the aim of expanding immunization coverage to all children across India by year 2020. As per MOHFW, immunization coverage in India has increased from 61% to 65% only from 2009-2013. So, MOHFW has decided to intensify its efforts in immunization though this mission.

Objectives of MI: The government intends to cover 201 high focus districts in the first phase of year 2015. These districts have nearly 50% of all unvaccinated or partially vaccinated children. Out of these 201 districts, 82 districts lie in just four states of India namely, UP, Bihar, Madhya Pradesh and Rajasthan. Nearly 25% of the unvaccinated or partially vaccinated children of India live in these 82 districts of 4 states. Furthermore, another 297 districts will be targeted in the second phase of year 2015.

A program of this scale generates an enormous amount of data for analysis and use. Immunisation data analysis and use are necessary to achieve evidence-based policy making, evidence-based management, and evidence-based accountability. Together with implementing the immunisation program, it is very important to formalise data management activities to ensure that implementation problems are detected and addressed; to identify both, areas of weak performance and specific areas where further input may be needed; and to collect information demonstrating the success of the program.

The performance of the UIP is assessed by data related to immunisation coverage as well as various input, process and output indicators for the various thematic areas of UIP.
The program is monitored using data from various sources, the chief amongst the sources being the following:

- Reported immunisation data- Health Management Information System and Mother and child Tracking System [MCTS]
- Periodic evaluation survey data- District Level Health Survey [DLHS], Annual Health Survey [AHS], Coverage Evaluation Survey (CES), etc.
- Concurrent monitoring data- WHO, UNICEF, etc.
- Program management/thematic area-wise data- National Cold Chain Management Information System (NCCMIS), Electronic Vaccine Intelligence Network (eVIN), AEFI, etc.

- Impact data- Vaccine Preventable Disease [VPD] surveillance, Integrated Disease Surveillance Project [IDSP], National Polio Surveillance Project (NPSP), Central Bureau of Health Intelligence [CBHI], etc.

- ANMs record information in the tally sheet cum due list at the session site.
- This data should be updated in their RCH/MCTS register.
- They prepare MPRs by referring to aggregate tally sheets data, MCH register.
- MPR data is entered in the State specific portal at the PHC.
- State specific portal data is transferred into the HMIS portal at the district level.

Aggregate tally sheet data must match with the MPR data. MPR data must match with the State specific & the HMIS portal data.

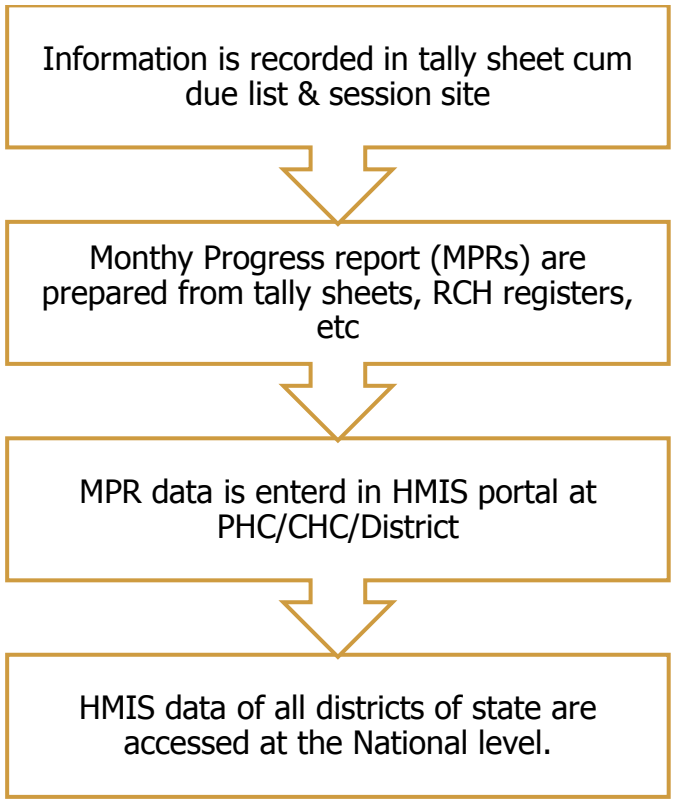

Figure 1: HMIS Information Flow and process steps

(UP-TSU, 2017)

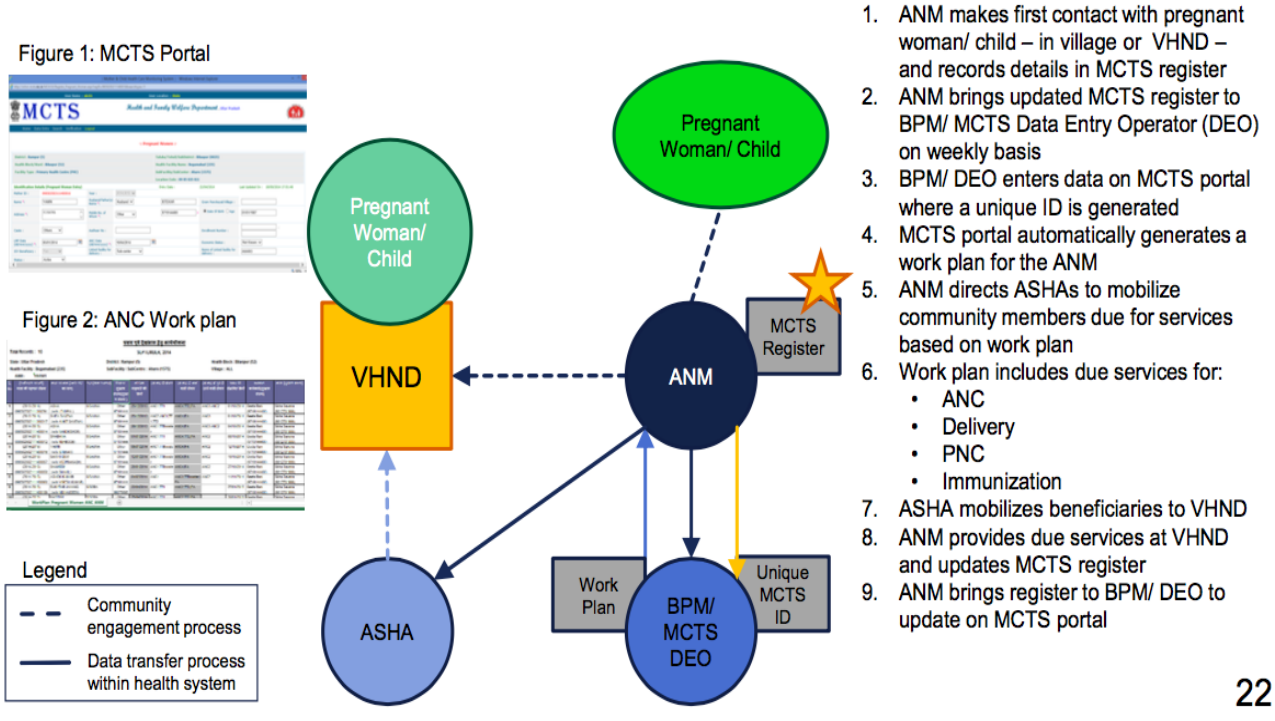

Figure 2: MCTS process flow

Section 2.02 Problem Statement

The MI coverage data is manually received which is extensively time consuming process and duplicates efforts.

Section 2.03 Problem Justification

Currently, ITSU is obtaining MI coverage data from 19 states and UTs. This data is manually received in form of offline excel sheets from all the states and districts and then collated for the country .It is analysed and published and even sent to MoHFW which makes it a very time-consuming and tiresome process. A system must, therefore, developed to reduce the time and efforts in collection of data and focus on data analysis and feedback.

Section 2.04 Objective

To develop a data entry system to record all Mission Indradhanush coverage data.

Section 2.05 Rationale

a) The rationale for developing the reporting system is primarily to reduce the time for data collection and entry from states and maximize time for data triangulation & analysis but maintain the quality of data.

b) The limitations of manual reporting are:

- As the data is cumulated from all the districts, then send to the state and finally to ITSU day-wise, therefore, it is a very time-consuming process. Also, all the data are sent on different dates. This makes data triangulation and analysis difficult.
- It also duplicate efforts as a data operator has to compile all the states data everyday as and when it is received.
- There is also a time lag in receiving the data, compiling and sending reports and feedback to respective states and MoHFW.
- As the data is sent manually, it all has different formats and layouts. And it is time consuming for data person to compile them into same format.
- Sometimes, there are also errors in data as it is manually done.
- Thus, a system is required which needs to be automated, accurate and restricted to be used by few authorized people.

c) **Rationale behind using google spreadsheet are**: firstly, everyone has a google account and it is very simple to operate on, secondly it requires less time to develop and can be implemented soon, thirdly specific sheet permissions can be given to only specific people.

Section 2.06 Methodology

Systematic review of the current reporting

Find the possible shortcomings in current reporting system

Brainstorming ideas for other alternate systems.

Finalising on one system and looking at its pros and cons.

Discussion about the format and layout with head of POME team

POME team meeting to discuss the suggestions

In depth discussion about each suggestion and addition of new ideas.

Implementation of the ideas by preparing a new "Mission Indradhanush Reporting System"

Review of the system made, by the POME team and modifications suggested.

Tool tested for reporting of one state/UT to check the accuracy, feasablity and ease.

Final implementation of the "Mission Indradhanush Reporting System" from 7th April'2017.

Suggestion from the users and modifications made accordingly to the system.

Section 2.07 Salient features of "Mission Indradhanush Reporting System"

a) The tool was developed in 'google spreadsheet' which is an online portal.

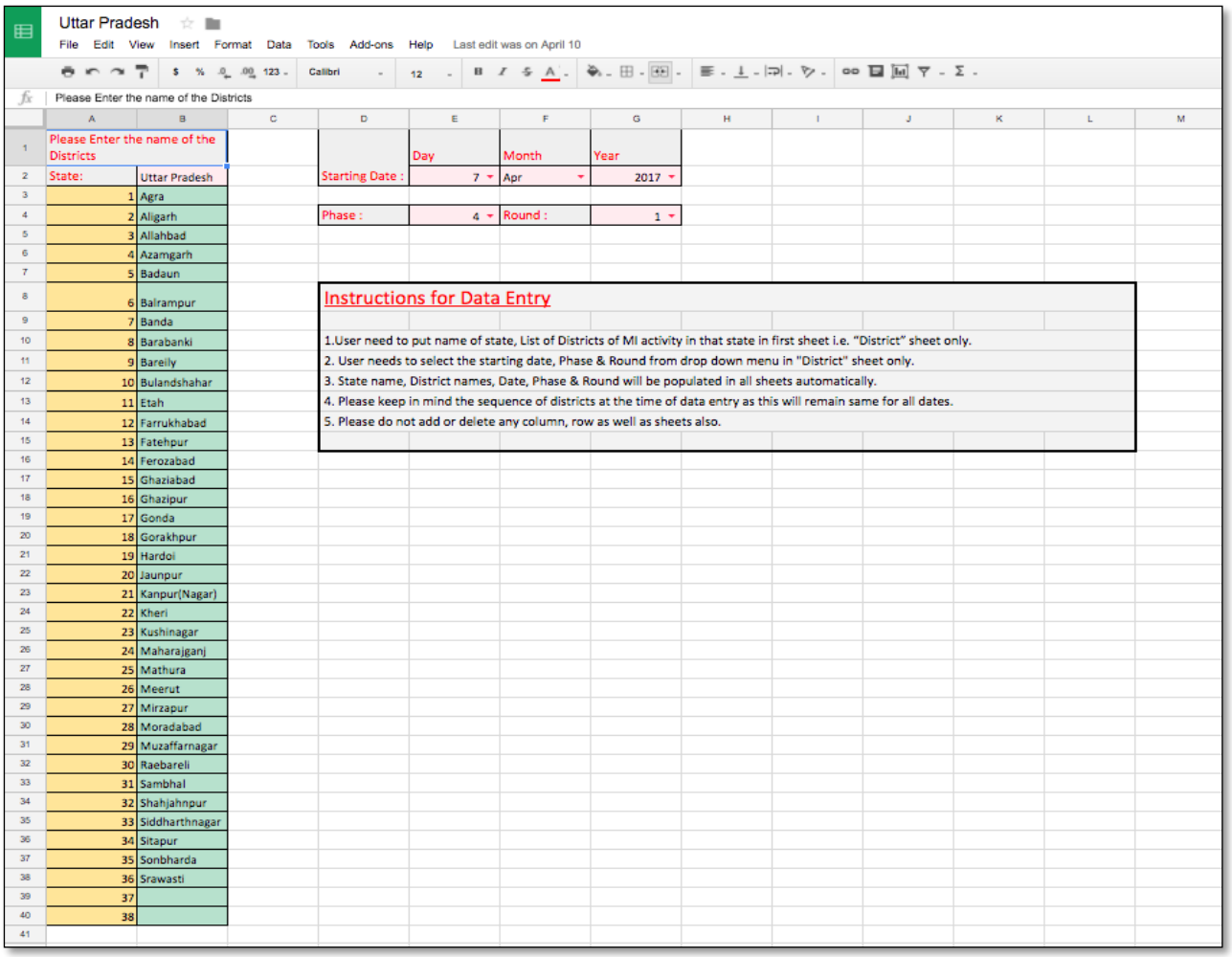

Figure 3: Google sheet for state UP

b) There is a separate document for every state. There are total 37 documents: 36 states and UTs and 1 Total of the country. Each document has total 27 sheets—

- **In all the states document:**
  - Sheet "DISTRICT" is for names of the reporting districts of the state, reporting date, phase and round of MI and few instructions for data entry.
  - Sheet "7" till sheet "31" has the columns for data entry for each day of the month.
  - Sheet "TOTAL" represents the total of the state's data for a particular month.
- **In the Total of states document:**
  - This document represents the total coverage data of MI for the country.
  - Sheet "STATES" is for the name of the reporting states in alphabetical order.

- Sheet “7” till sheet “31” has the total of districts from the state on a particular date. The sheets retrieve data from their respective state document day-wise.
- Sheet “TOTAL” represents the total of all states at a consolidated date. This sheet is not linked to the states document but receives data from the ‘Total of states’ document. This ensures double checking of the data.

c) The columns of each sheets in every document represent the coverage data under headings: No. of sessions held; No. of target children for the day (as per the due lists based on headcount); No. of children vaccinated; No. of children vaccinated for the first time in life (0-11 months & 12-23 months); pregnant female vaccination; Record no. of each antigen (BCG, OPV1, Penta1, RVV1, fIPV1, OPV2, Penta2, RVV2, OPV3, fIPV2, IPV, Measles1, JE1, Vit-A1); Full immunisation achieved; Record no. of vaccination (DPT1, DPT2, DPT3, OPVB, DPTB, Measles2, JE2, Vit-A2); Complete immunisation achieved; DPT-B (5-6 yr.); No. of ORS distributed; No. of zinc tab distributed.

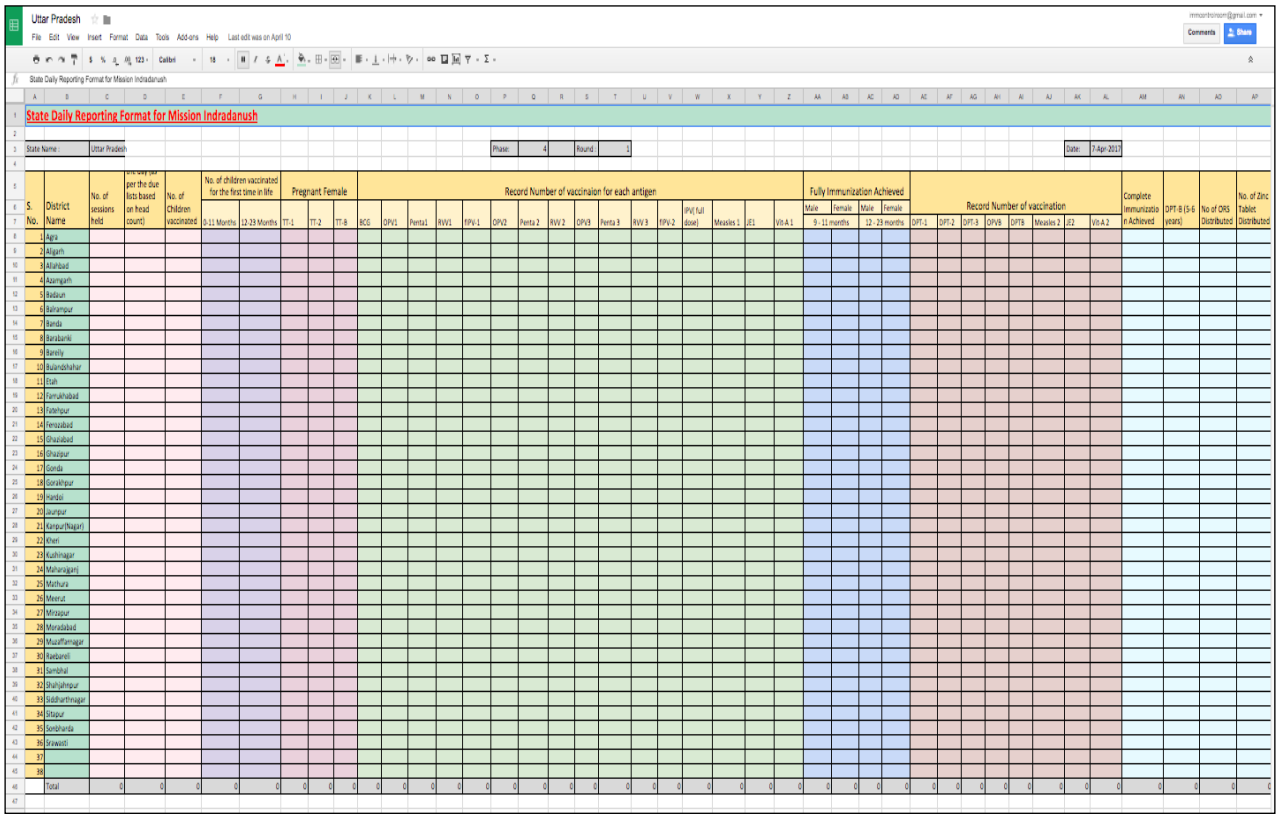

Figure 4: Google sheet for all districts for UP

d) As the spreadsheets were made from the google account of Immunisation Control room in ITSU, it can only be edited by them except few cells in which data is to be entered. ITSU gives the rights only to the authorized person of the state to fill in their data day-wise.

Section 2.08 Developing SOP for the system

The purpose of Standard Operating Protocol is to establish a uniform procedure for reporting of coverage data for Mission Indradhanush. The procedures outlined in the SOP are applicable to all state data units. (mentioned in Annexure A)

Section 2.09 Advantages of "Mission Indradhanush Reporting System"

a) This system saves a lot of time as google spreadsheet enables real-time updating of the document.
b) Almost every state has a google account thus, can be assessed by everyone. It is also a free system and did not require buying any license for software.
c) The system ensures data validation at the data entry sites.
d) Multiple users can view the documents at same time without compromising with the security.
e) State can update data day-wise or when they obtain data from respective districts. This will ensure continuous reporting.
f) As each document is protected and rights are given to state data handlers there is no mishandling of the data.
g) There is little or no time lag in data entry and compilation unlike previous reporting.
h) Data once finalized can be downloaded in .xlsx or other formats and saved by any state or MoHFW.
i) Below figure shows the pre-and post-scenario of implementation of reporting system. The yellow arrow denotes the data flow in manual reporting. The data then had to go thorough many people which caused delay and was time consuming which left little time for analysis and feedback. The blue arrow denotes the data flow after implementation where control room in-charge and MoHFW can view the data at all times.

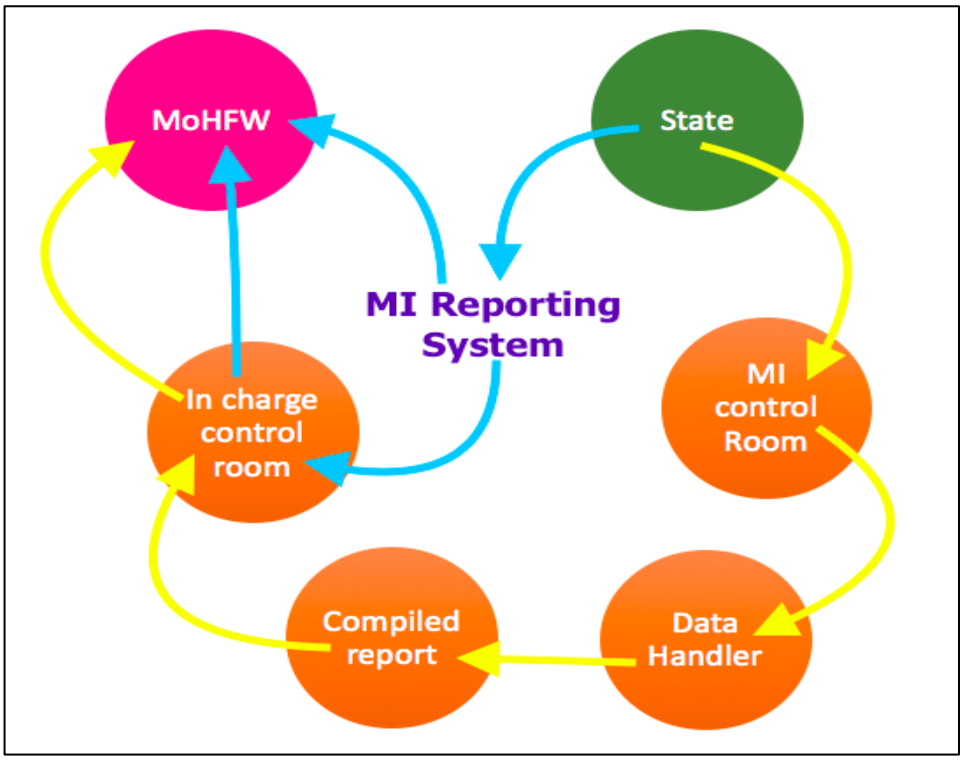

Figure 5: Data flow before and after implementation of MI Reporting System

Section 2.10 Limitations of "Mission Indradhanush Reporting System"

a) Can only be assessed by a person having a google account and decent internet connection.

b) As it involves online real-time updating, it is prone to online glitches like cyber insecurity, viruses, etc.

c) Handholding of state data person is required.

d) Google spreadsheet is a relatively lesser used system.

e) Data has to be manually archived every month before the start of reporting.

Section 2.11 Issues after implementation

a) Two states did not have a google account. They were requested to make a Gmail account to access the tool.

b) Tool was custom prepared for the state depending on the number of districts that were reporting. Some states like Telangana, Meghalaya and Rajasthan increased their reporting districts which caused some issues.

c) Some states had issues in entering data in few dates of the month. This was found out to be due to permission restrictions. As the sheets were protected, the user could not edit/enter data which was later rectified.

d) The data once entered by the state can be edited again any time. This creates some credibility issues and it cannot be used for analysis unless the data is frozen and authenticated. To solve this problem ITSU has given a deadline for all states after which they cannot edit their data. The data in the sheets till that date will be printed and authenticated by MoHFW.

Section 2.12 Recommendations

a) Guidelines for implementation:

- "Mission Indradhanush reporting system" can be extended to the districts.
- Robust and clear guideline can be prepared for users.
- Feedback from users should be taken on monthly basis to improve the system

b) Procedure for implementation:

- Handholding and training of data handlers at state level.
- After data entry by states the sheets can be frozen after few days which will prevent manipulation, increase the authenticity of the data, and spare more time for data triangulation & analysis.

Section 2.13 Scope for future work

- Currently in the system, manual archiving has to be done every month before data entry into the system. Thus, the option of auto archiving should be explored.
- System can be modified to include more data validations at data entry.
- Similar systems can be developed for other campaigns and missions which are reported separately from HMIS or MCTS. This system can be developed specially for new vaccines introduced like MR, PCV and IPV.

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PROJECT 2:

CHALLENGES IN NEW VACCINE INTRODUCTION UNDER UIP

ARTICLE III. CHALLENGES IN NEW VACCINE INTRODUCTION UNDER UIP

Section 3.01 Introduction

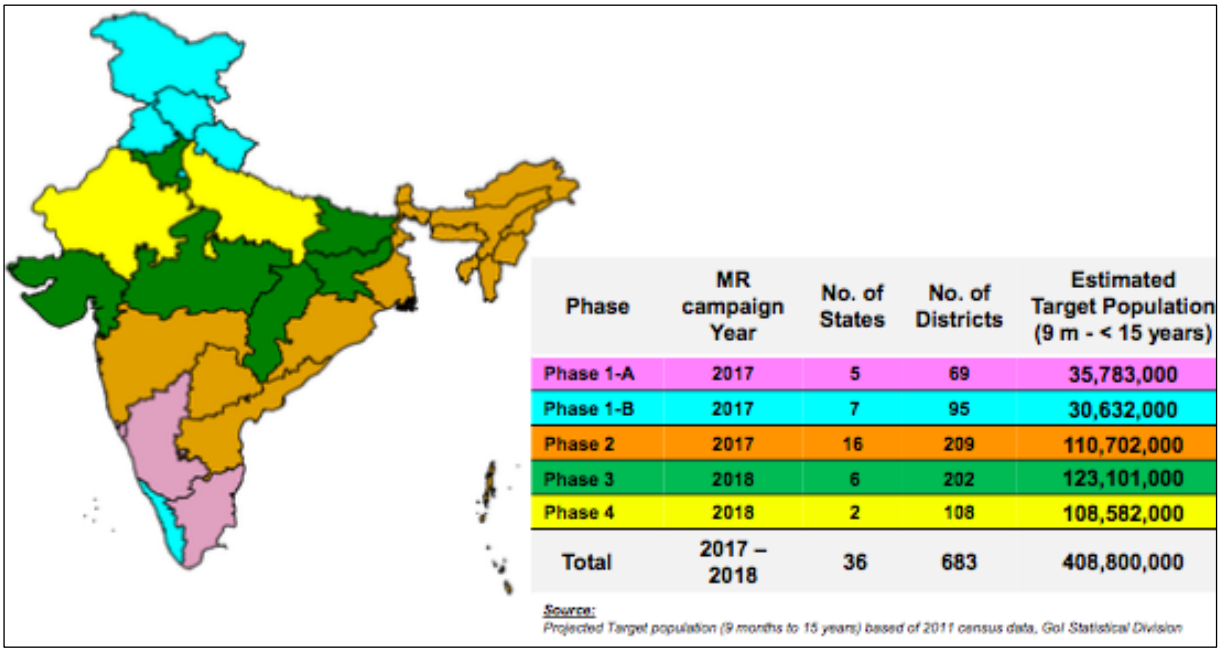
New vaccines introduced as per National Technical Advisory Group on Immunization (NTAGI) recommendation:

As campaign/ mission mode:

A one-time event targeting multiple cohorts in which susceptible children have accumulated. The target age group depends on the susceptibility profile of the population.

a) Measles Rubella (MR) vaccine

Rationale: Measles is highly infectious and is one of the major childhood killer diseases. Of the 1,34,000 measles deaths globally in 2015, an estimated 47,000 occurred in India. Unlike measles, rubella is a mild viral infection that mainly occurs in children. Of the 1,10,000 children born with CRS every year globally, an estimated 40,000 cases occur in India alone.



Phase	MR campaign Year	No. of States	No. of Districts	Estimated Target Population (9 m - < 15 years)
Phase 1-A	2017	5	69	35,783,000
Phase 1-B	2017	7	95	30,632,000
Phase 2	2017	16	209	110,702,000
Phase 3	2018	6	202	123,101,000
Phase 4	2018	2	108	108,582,000
Total	2017 – 2018	36	683	408,800,000

Source:
Projected Target population (9 months to 15 years) based of 2011 census data, GoI Statistical Division

Figure 6: Proposed MR Vaccine Introduction Plan (2017-18)

Roll out: The Ministry of Health and Family Welfare launched Measles Rubella (MR) vaccination campaign in the country at a function in Bengaluru on 7th February 2017. **The campaign against these two diseases will start from five States/UTs (Karnataka, Tamil Nadu, Puducherry, Goa and Lakshadweep) covering nearly 3.6 crore target children.** Following the campaign, MR vaccine will be introduced in routine immunisation, replacing the currently given two doses of measles vaccine, at 9-12 months and 16-24 months of age. The MR campaign targets around 41 crore children across the country, the largest ever in any campaign.

b) Japanese Encephalitis (JE) vaccine

Rationale: According to the Directorate of National Vector Borne Disease Control Programme (NVBDCP), Delhi, 1661 cases of JE were reported in the year 2014 from 15 states and union territories, out of which 293 (17.6%) died. Assam, West Bengal, Uttar Pradesh and Jharkhand reported the maximum number of cases.

Roll out: In 2011, SA-14-14-2 JE vaccine was introduced in the routine immunisation under Universal Immunization Program (UIP) in the 181 endemic districts as a single dose at 16 to 18 months at the time of 1st booster of DTP vaccine. In 2013, another dose of SA-14-14-2 vaccine was added at 9 months of age along with measles vaccine. Following mass vaccination campaigns with live attenuated SA-14-14-2 JE vaccine among paediatric age group, adult JE cases have outnumbered paediatric cases in some JE endemic states. **Recently, NVBDCP has identified 20 high burden districts in three states–Assam, Uttar Pradesh, and West Bengal for adult JE vaccination (>15-65 years). Till now, eight districts have been covered by the adult vaccination programme.**

As a part of RI

Routine immunization: Regular provision of immunization services to successive cohorts of infants through vaccination at outreach and fixed sites.

c) Rotavirus vaccine (RVV)

Rationale: Available data indicates that Rotavirus is responsible for nearly 40% of moderate to severe diarrhoea in under-five children amounting to 4,50,000 to 8,84,000 hospitalizations, 20,00,000 outpatient visits and 1,22,000-1,53,000 deaths annually in India. Traditional diarrheal disease prevention efforts, such as improving hygiene, sanitation, and access to clean water, are not sufficiently effective in preventing rotavirus, as evidenced by the near universal rate of infection. And, because of the profuse and persistent vomiting that usually accompanies severe cases, oral rehydration therapy is a very difficult treatment to successfully administer. A vaccine is considered to be the most effective prevention method.

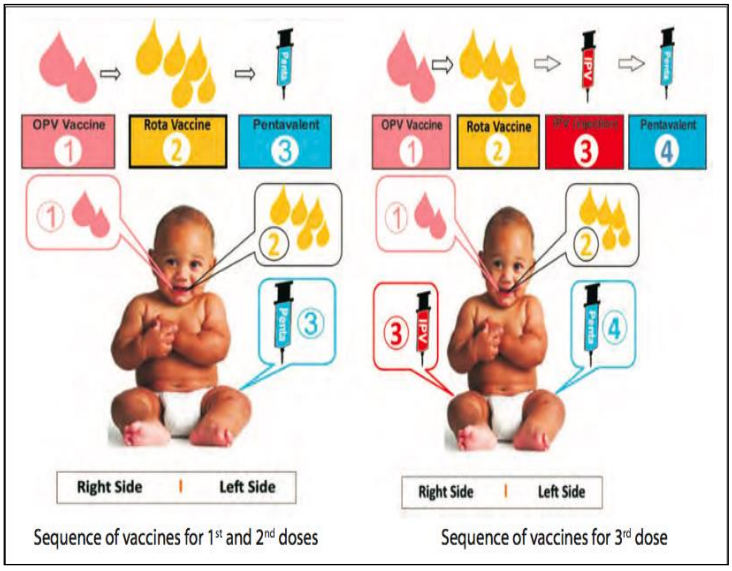


Figure 7: The sequence of vaccine administration with RV

Roll out: **It was introduced in 4 states – Andhra Pradesh, Haryana, Himachal Pradesh (except Kangra district) and Odisha in the first phase and then expanded to—Assam, Tripura, Madhya Pradesh, Rajasthan, and Tamil Nadu.** The rotavirus vaccine was given to all new birth cohorts as per schedule up to one year of age as was done during Pentavalent and IPV vaccine introduction.

d) Injectable Polio Vaccine (IPV)

Rationale: **The global polio endgame strategy entails introduction of IPV in the RI schedule at or after 14 weeks of age prior to switch from trivalent oral polio vaccine (tOPV) to bivalent oral polio vaccine (bOPV) to boost population immunity against the risk of circulating vaccine-derived poliovirus type 2 (cVDPV2)**. India is now guarding itself against the risk of polio resurgence from endemic countries (Afghanistan, Nigeria and Pakistan) and re-infected countries such as Cameroon, Equatorial Guinea, Ethiopia, Iraq, Kenya, the Syrian Arab Republic and Somalia. India also faces the risk of paralysis from vaccine-derived polioviruses (VDPVs) in areas with low population immunity.

Roll out: **The GoI introduced IPV in October 2015 initially in 6 states—Assam, Bihar, Uttar Pradesh, Gujrat, Madhya Pradesh & Punjab and then extended to Chandigarh, Delhi, Haryana, Rajasthan, Andhra Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Lakshadweep, Dadra & Nagar Haveli, Daman & Diu.**

Section 3.02 Objective

To understand the challenges in the introduction of new vaccines under UIP

Section 3.03 Methodology

- **Method of Research:** Qualitative data exploration
- **Study design:** Exploratory study
- **Study tool:** Desk review, literature review & semi-structured qualitative in-depth interview (mentioned in annexure B)
- **Sampling design:** purposive convenient sampling (mentioned in annexure C)

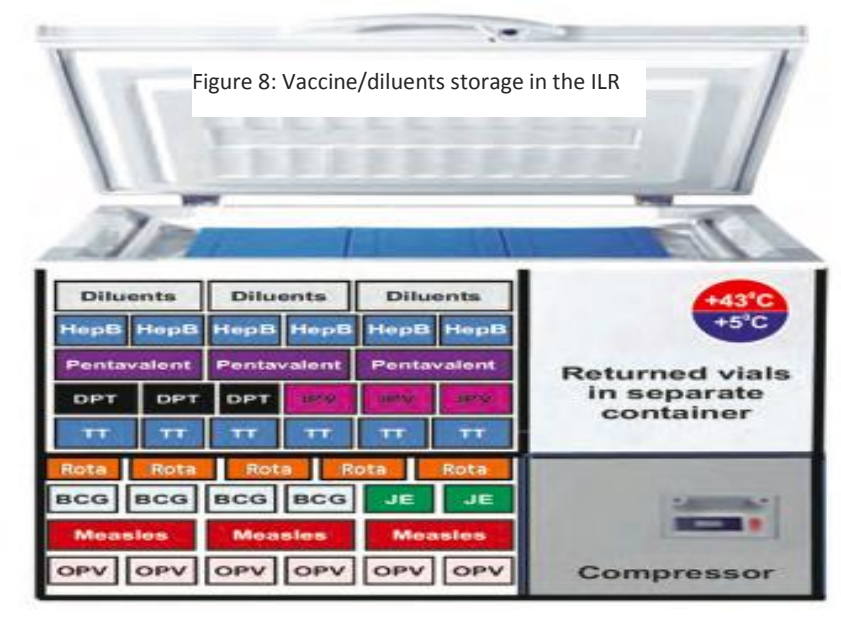
Section 3.04 Results

VACCINES	*CHALLENGES*
Japanese Encephalitis vaccine	• The vaccine was initially started under RI but as the coverage remained low, it was relaunched as campaign along with RI in UP, Bihar & Assam. The coverage remained low because of programmatic failure and the community was not sensitized.

	• The campaign organised was for two cohorts: 1-15yrs and 15-60yrs. As these cohorts mainly consists of adolescents and adults, they didn't feel the need for the vaccine. • **Issues of social media & IEC:** The vaccine was rumoured to be a plan of the Rashtriya Swayamsevak Sangh (RSS) to check population. Panic had set in among parents as well, particularly in Muslim-majority areas, following widespread rumours that the vaccine will be administered in schools to make students, both boys and girls, infertile. As a result, many parents had stopped sending their children to schools in many districts of Assam & West Bengal. • **Issues of cold chain:** JE vaccine should be given during December-February and not during June-November as it is the transmission season. JE vaccine requires 28 days for seroconversion thus ideally should be given a month before transmission season. But, the vaccines were given during transmission time because of political pressure and vaccine stock-outs in some districts. • **Issues of AEFI:** 1. As the vaccine were not given at appropriate time & encephalitis cases were reported in many districts. 2. The vaccines were given in school campaign which created a lot of chaos and many AEFI cases were reported. But after investigation they were accounted to anxiety among school children and not due to vaccines.
Measles-Rubella Vaccine	**Background:** The states were selected on the basis of status of health indicators & healthcare delivery system. The campaign was planned to be held in school both private and public which required involvement of many ministries apart from MoHFW. Southern states have many migrant population & anti-vaccine lobby. • **Issues in state preparedness:** The southern states selected for the campaign never had any previous immunisation campaign and the states were not prepared to roll out campaign for the huge cohort of around 40 crore children. Also, the selected states were politically unstable because of recent death of their political leader which made advocacy difficult. • **Big cities were a huge challenge:** All big cities & state capitals had vaccine hesitancy. Urban health infrastructure was limiting: ◦ Inadequate vaccinator ◦ Inadequate social mobiliser/social mobilization through IPC ◦ Inadequate & incomplete micro planning ◦ Overall HR and Logistic constraints were limiting factor ◦ Private/posh schools were resistant to injectable vaccination ◦ Private paediatricians were not sensitized • **Issues in social media & IEC:** 1. Fake alerts, which included texts and audio clips, claimed the vaccine is banned in US for causing serious side-effects, including damaging a child's immunity and memory & is being pushed in India by global pharmaceutical industry looking for a market to dump their products circulated quickly in Tamil Nadu & Karnataka. 2. In February, a Whatsapp rumour spread about the MR campaign, alleging that it was aimed at making Muslim children "impotent" and reducing the country's Muslim population. The rumour reportedly affected the drive's target delivery in Tamil Nadu. Health officials in Karnataka had to start a Facebook campaign before taking the programme to the state.

	3. Parents & children felt that this vaccine was being imposed on them. They had apprehension about vaccination drive in schools particularly private schools of higher & middle income backgrounds. Rather parents would take their child to designated vaccination centres. 4. Worried by the lack of information around the MR drive, some parents in Bengaluru started an online petition against it. 5. When reviewed, there was huge programmatic failure as coverage did not reach required level. This was attributed mainly to poor mobilization efforts, poor advocacy with stakeholder & poor inter-sectorial co-ordination.
Rotavirus vaccine	**Background:** Three RVV vaccines are available in market out of which 'Rotavac' is an indigenously manufactured vaccine by Bharat Biotech and is used under UIP. It is introduced as five drops as a part of RI. 4 states were selected for RVV introduction on the basis of diarrheal disease burden; AEFI preparedness. • **Issues in AEFI:** There is a small risk of intussusception from RVV, usually within a week after the first or second dose which is estimated to range from about 1 in 20,000 to 1 in 100,000 infants who get RVV. Training of ASHAs & ANMs were done to report the side effects but there was little or no reporting of intussusception after vaccine delivery, in fact the overall cases of infant intussusception declined in the states. • **Issues in cold chain & vaccine logistics:** Rotavirus vaccine is heat sensitive vaccine and loses its potency when exposed to temperatures outside the range recommended by the manufacturer. The heat impact on vaccines is cumulative. Proper storage of vaccines and maintenance of the cold chain during storage and distribution are essential to prevent the loss of potency. RVV storing is done at -

Figure 8: Vaccine/diluents storage in the ILR



20° Celsius at GMSDs, in the walk-in freezers (WIFs) or deep freezers (DFs). Cold chain points below district level should store vaccine at +2°C to +8°C, in ice-lined refrigerators (ILRs). The droppers for administration of the vaccine are to be stored at room temperature as freezing can cause the droppers to crack.

	• **Issues in training conducted for all levels of health functionaries:** ASHAs & ANMs were very familiar with two drops of OPV and often confused it with RVV. There were reported cases where HWs would give two drops of RVV which were ineffective. Thus, cascaded trainings are envisaged for building capacity of all cadres of staff involved in RI. Each state where RVV was to be introduced were expected to conduct State ToT workshops. Subsequently, the district level officers conducted district-level training for block MO and Paramedical Supervisors of their district. These MO and Paramedical Supervisors (including the ANM School Trainers) will, in-turn, be responsible for training health workers, including ANMs, ASHAs, AWWs, supervisors in their areas.
Injectable Polio Vaccine	**Background:** In October 2012, WHO's Strategic Advisory Group of Experts on Immunization (SAGE) advised all countries to introduce at least one dose of IPV into their RI programmes**.** As of June 2016, 106 new countries, out of 126, have introduced IPV into their schedule from 2013, which makes IPV the new vaccine with the fastest uptake to date. • **Issues in vaccine supply:** UNICEF projected supply to be constrained through 2017 on account of reduced availability from manufacturers and increased country demand. With a global shortage of IPV, MoHFW had clammed down on indiscriminate release of the vaccine to dispensaries and health centres - who held on to unneeded stock - to prevent wastage of the drug. • MoHFW made the supply chain performance-driven instead of stock-driven and comfortably released one dose per child. • Amid a global shortage of IPV, several countries in the World Health Organisation (WHO) South-East Asia Region opted to use fractional doses of IPV, an evidence-based intervention that not only ensures continued protection of children against all types of poliovirus, but also helps save vaccine wastage. A fractional dose of IPV is a smaller dose of the same vaccine, equal to 1/5 of a standard dose. Studies show that **2 doses of fractional dose IPV** administered by **intradermal injection** produce an even stronger immune response than a single full IPV dose. • **Issues in training of staff:** Switch from single IPV dose to two fractional IPV doses within three months of introduction created many issues in re-training of health care workers.

Section 3.05 Lessons learned

Campaign/RI	*Lessons learned from challenges faced after vaccine introduction*

JE campaign	• Pre-launch activities undertaken:
	  ◦ Roll out preparations - at least 2-3 months prior to vaccine introduction
	  ◦ Review state and district preparedness
	  ◦ State- and district-level planning & orientation workshops
	  ◦ Media orientation
	• Private sector involvement:
	  ◦ Inform and engage professional bodies (IAP, IMA), other stakeholders (Rotary, Lions)
	  ◦ Encourage private practitioners to report VPDs and AEFIs.
	• Revise existing RI micro plans to include high risk areas & prepare using bottom-up approach.

MR campaign Phase 1	• Sufficient preparatory time of six months in advance is necessary
	• Maximum geographical contiguous areas in shortest time period enhances population immunity:
	  ◦ Phasing of MR vaccination campaigns considering largest geographical area in contiguity
	  ◦ Staggering over long span of time dilutes herd immunity
	  ◦ Intermixing of immunized and unimmunized can be minimized, to prevent dilution of herd immunity
	• State priority for campaign over other programmes
	• Staggering campaign for long, loses focus
	• District taskforce pivotal for both coverage & safety
	• Sensitization of key opinion makers helps in effective social mobilization of parents. Prior sensitization of:
	  ◦ Leading Local Private paediatrician/practitioners/clinicians
	  ◦ Schools principals-teachers-parents
	  ◦ Local Media new paper, TV, radio
	  ◦ Opinion leaders and influencers in the community/villages
	  ◦ Direct communication-social mobilization of care givers
	  ◦ Positive media messaging in electronic and social media
	• AEFI training and sensitization with the AEFI-kit vital for all doctors in districts/states (both Govt. and Pvt.)
	• Campaigns are beyond health department:
	  ◦ Inter departmental and inter-ministerial coordination critical for campaign success to achieve high coverage-Health; Education; WCD; PRI; Urban development
	  ◦ Partner coordination plays a vital role (IAP-IMA-Lions club)
	  ◦ Public sector undertaking
	  ◦ STFI and DTFI should be used as platform for this pivotal coordination between departments / partners at every level of operation.

RVV (PIR following RVV introduction)	• The acceptance of the RVV was found to be very good among all cadre of health workers and mothers/care givers. This can be attributed to strong IEC and IPC which should be ensured in next phases too • The vaccine was perceived to be very safe and no AEFI till date has been associated to RVV in causality assessments. However, like in phase one, AEFI surveillance system should be updated and strengthened in the newer RVV introducing states and districts using updated AEFI guidelines (2015) • It is imperative to entice positive media advocacy by conducting workshops, writing articles, OPECS etc and sharing the success of the first phase of introduction • The existing monitoring mechanisms should be updated to include RVV and data from such should be made available to all program managers to allow them to take corrective actions. • Past experiences from different countries and India shows that reporting of adverse event following new vaccine increases due to improved sensitisation and training.

IPV	• Cold chain & vaccine management:
	  ◦ Strengthen cold chain and vaccine management
	  ◦ Timely update of vaccine status in eVIN
	  ◦ Regularly review cold chain inventory and update its status in the NCCMIS.
	  ◦ Organize quarterly review of district cold chain handlers
	  ◦ Introduce preventive cold chain visits
	  ◦ Closely monitor vaccine wastage
	• Injection safety & waste management:
	  ◦ Strengthen waste management practices as per the guidelines and ensure regular review at all facilities
	  ◦ Ensure availability of hub cutters, and black and red bags at immunization sites

Section 3.06 References

- Measles Catch-up Immunization Campaign Guidelines for Planning and Implementation. Retrieved from http://searo.who.int/india/topics/measles/Measles_Catch-up_OPS_Guide_India_2010.pdf?ua=1
- Measles Rubella Vaccination Campaign (2017). Retrieved from http://www.pcpndtbangalore.in/downloads/mrcampaign.pdf
- Operational Guidelines for Introduction of IPV. Retrieved from http://www.who.int/immunization/diseases/poliomyelitis/inactivated_polio_vaccine/ipv_operational_manual.pdf
- Pradeep Haldar (2016) Operational Guidelines Introduction of Rotavirus Vaccine in the Universal Immunization Programme in India**.** Retrieved from http://www.sabin.org/sites/sabin.org/files/pradeep_haldar.pdf
- Japanese Encephalitis Vaccination Campaign (2014). Retrieved from http://nvbdcp.gov.in/Doc/JE-AES-Prevention-Control(NPPCJA).pdf

ARTICLE IV. ANNEXURES

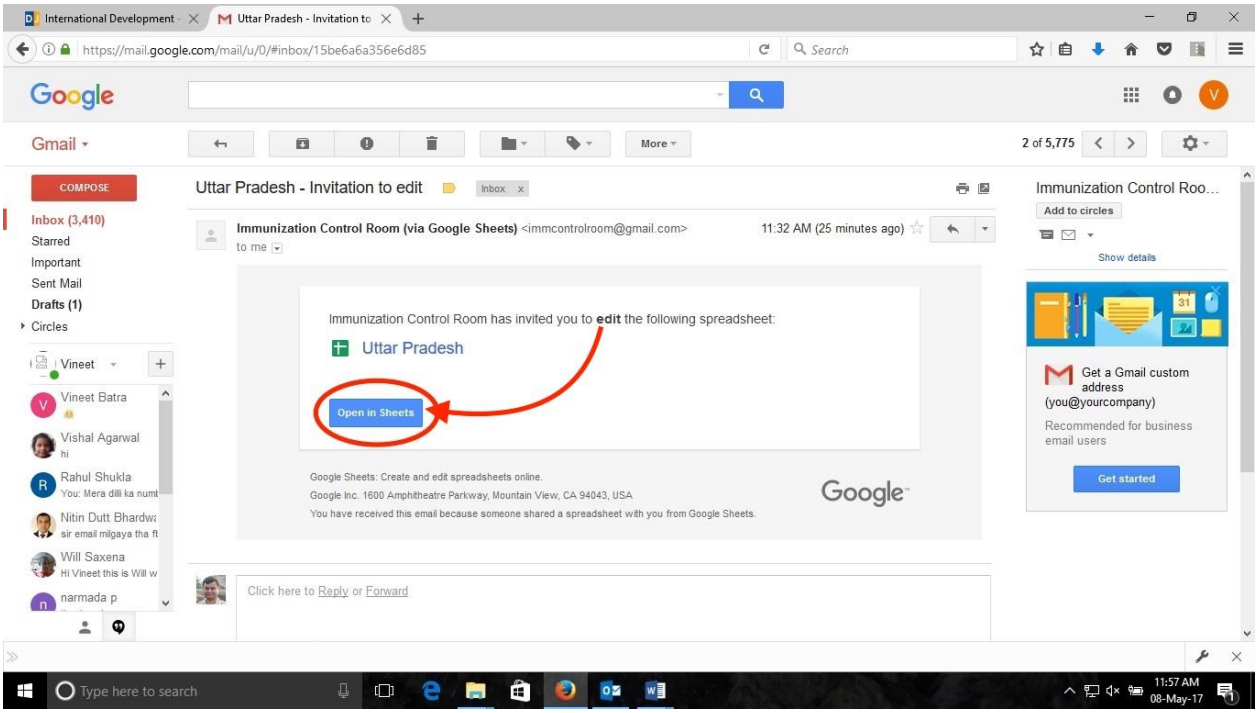
Section 4.01 Annexure A

INSTRUCTIONS

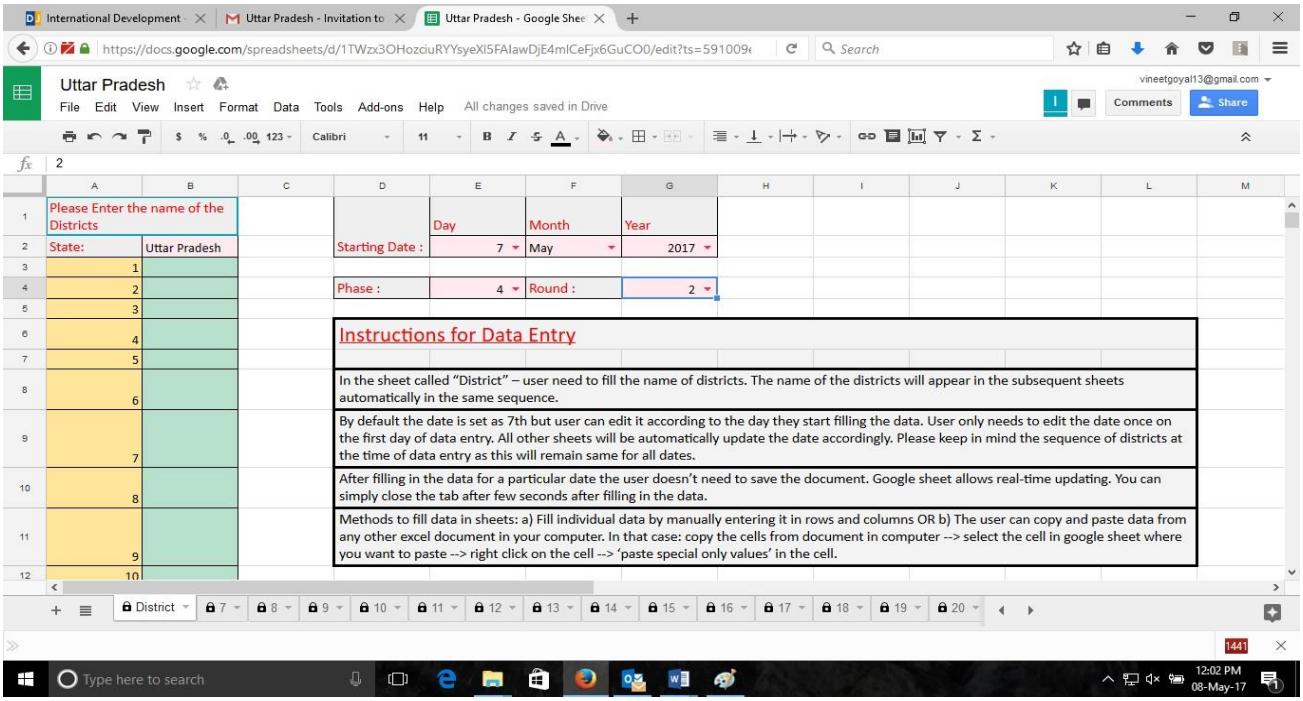
for using

Google based MISSION INDRADHANUSH reporting system

1) User will receive a mail from **immcontrolroom@gmail.com** inviting to edit the state's spreadsheet. Click on the tab "OPEN IN SHEETS".



Following the user will be re-directed to google sheets in a new tab.



2) In the first sheet called "District" – fill in the districts and read the instructions given. The name of the districts will appear in the subsequent sheets automatically in the same sequence.

3) By default, the date is set as 7th but user can edit it according to the day they start filling the data. User only needs to edit the date once on the first day of data entry. All other sheets will be

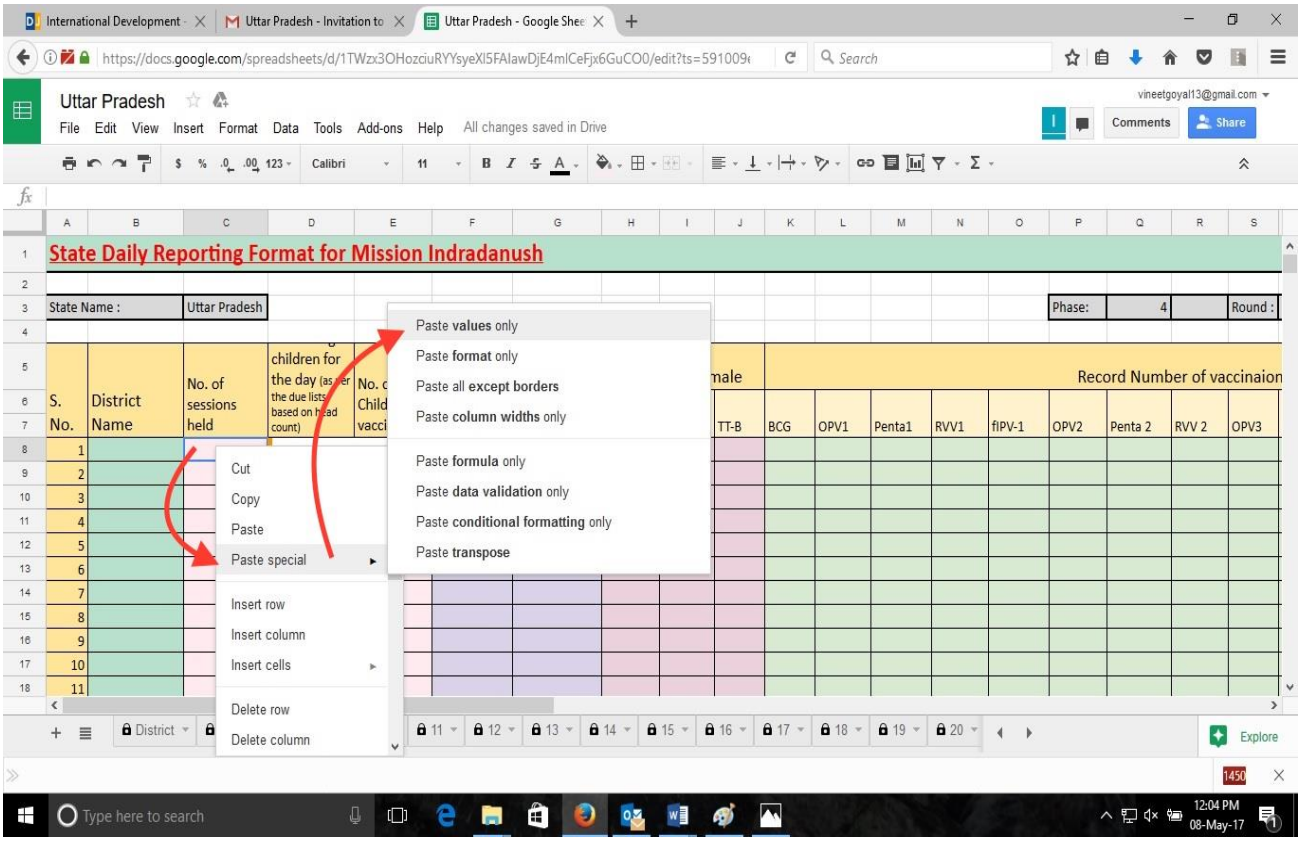
automatically update the date accordingly. Please keep in mind the sequence of districts at the time of data entry as this will remain same for all dates.

4) After filling in the data for a particular date the user doesn't need to save the document. Google sheet allows real-time updating. You can simply close the tab after few seconds after filling in the data.

5) Methods to fill data in sheets:
   a) Fill individual data by manually entering it in rows and columns.

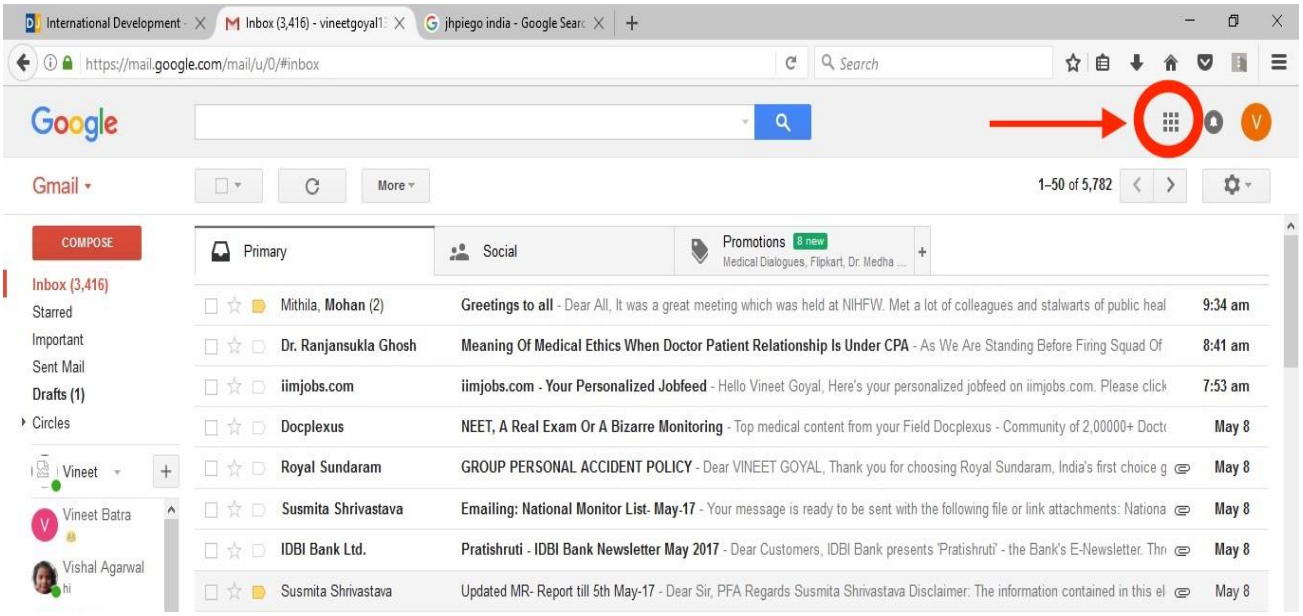
   OR

   b) The user can copy and paste data from any other excel document in your computer. In that case: copy the cells from document in computer → select the cell in google sheet where you want to paste → right click on the cell → 'paste special' → 'paste values only' in the cell.

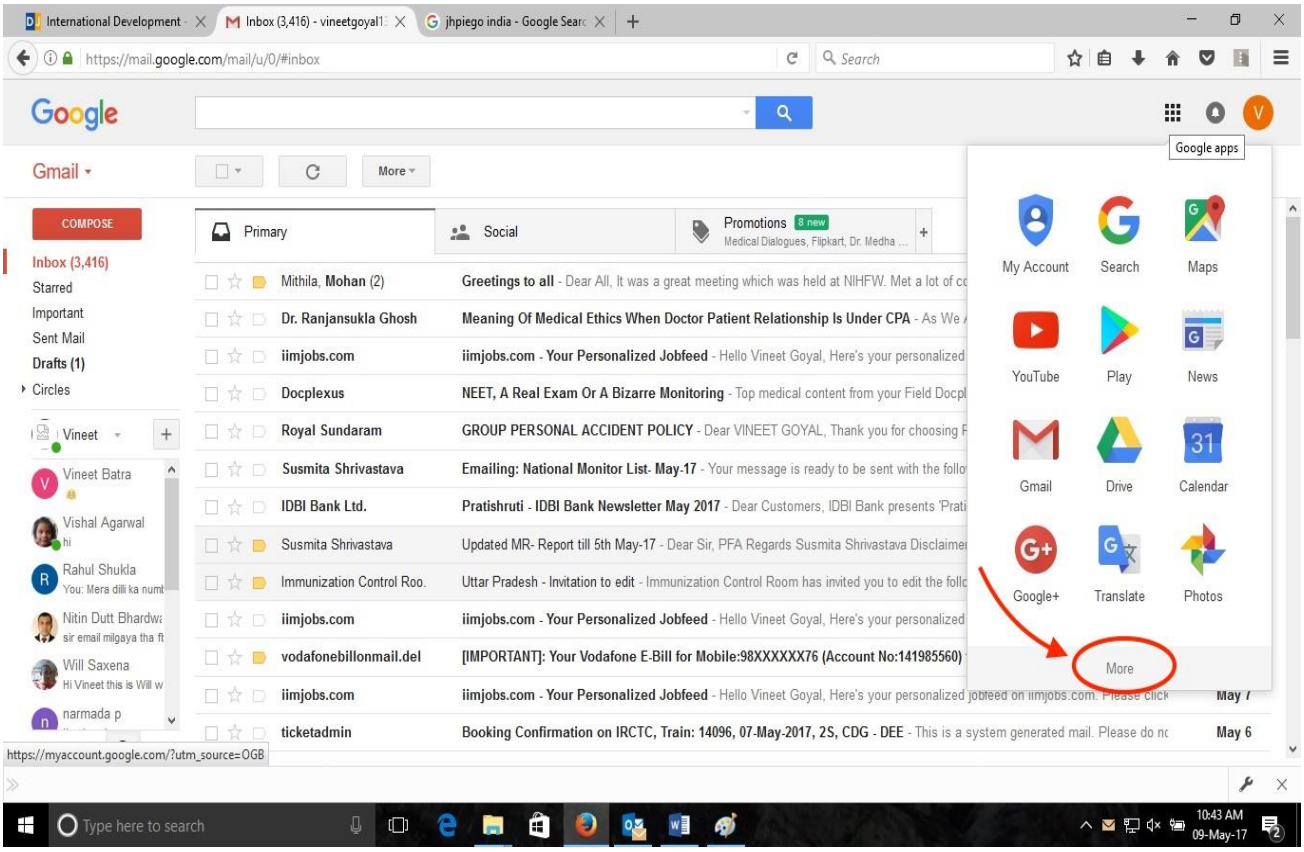


INSTRUCTIONS TO RE-OPEN THE SHEET

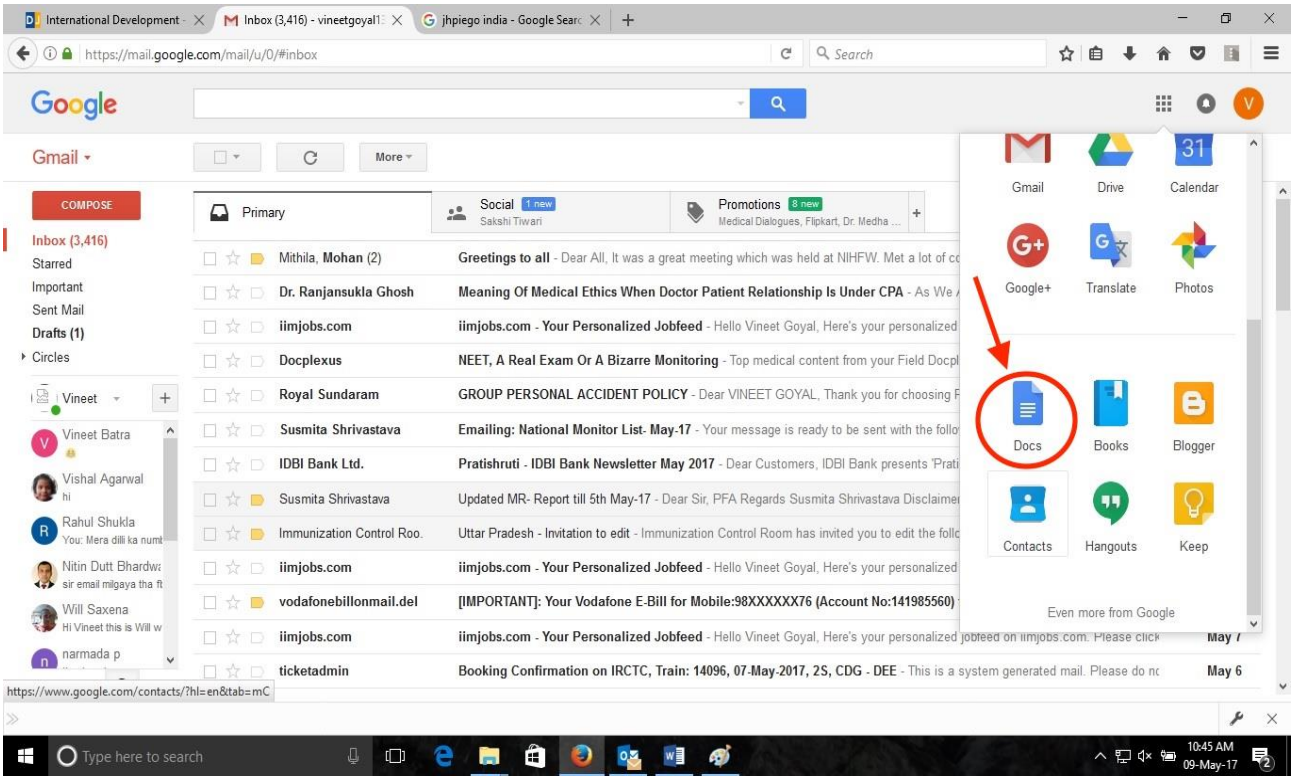
1. Open the Gmail account in which the mail was previously sent. And click on google apps option.



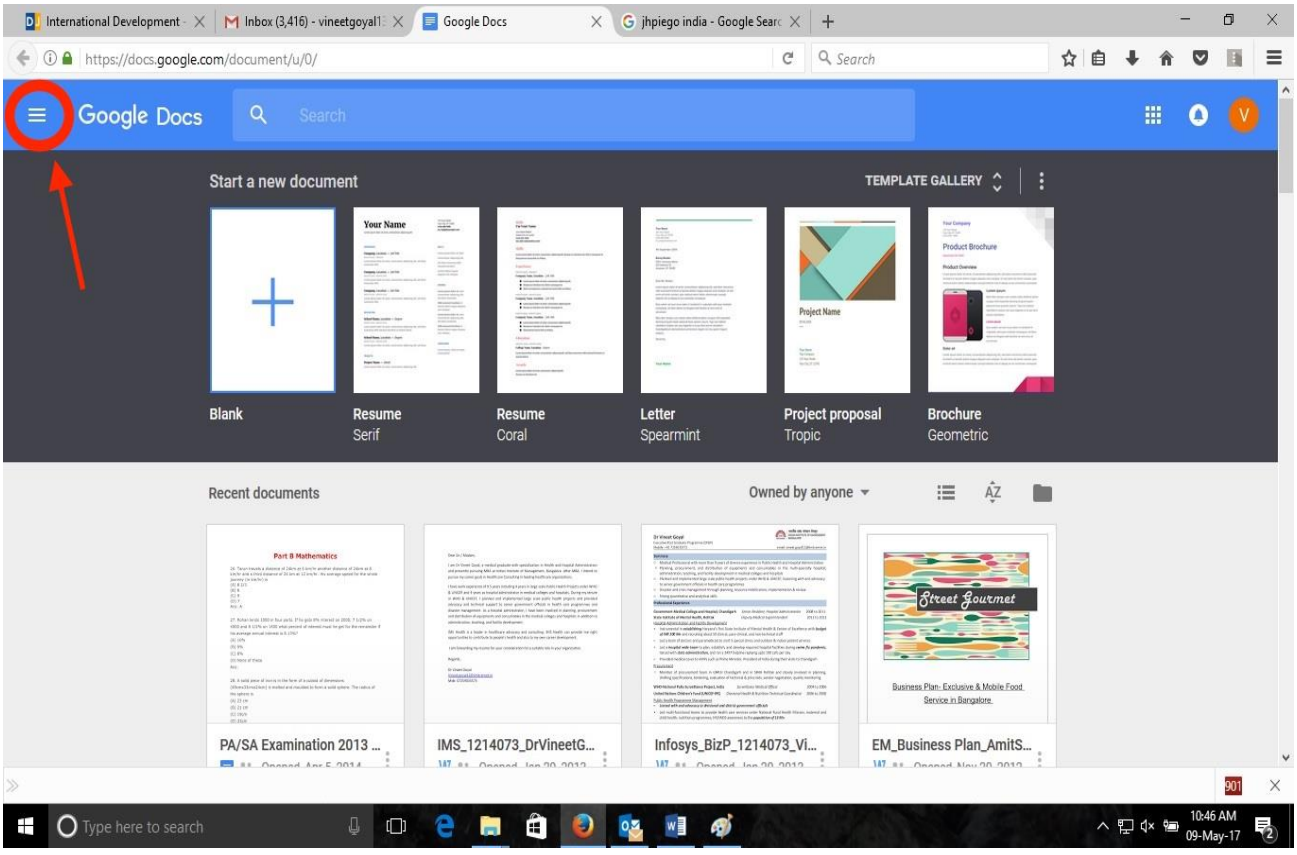
2. Select more from the drop-down menu (if “sheets” is not available)



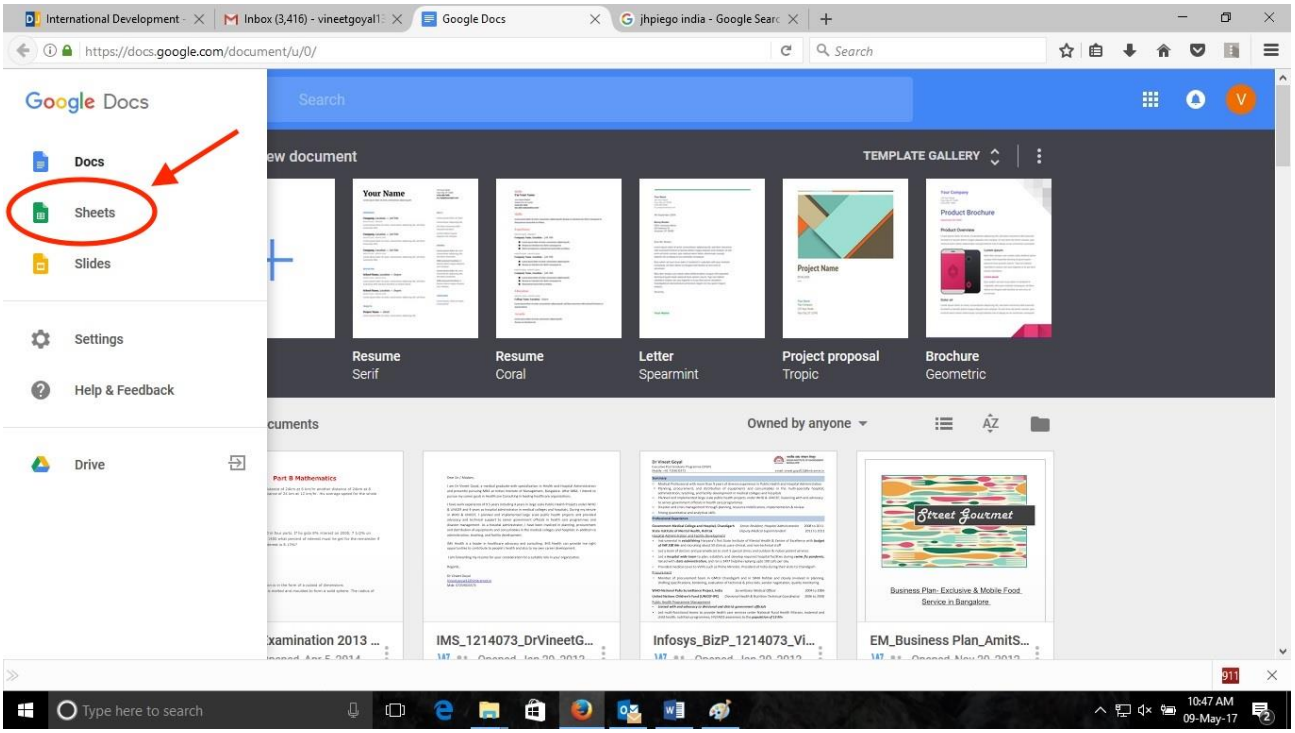
3. Select Docs from the options.



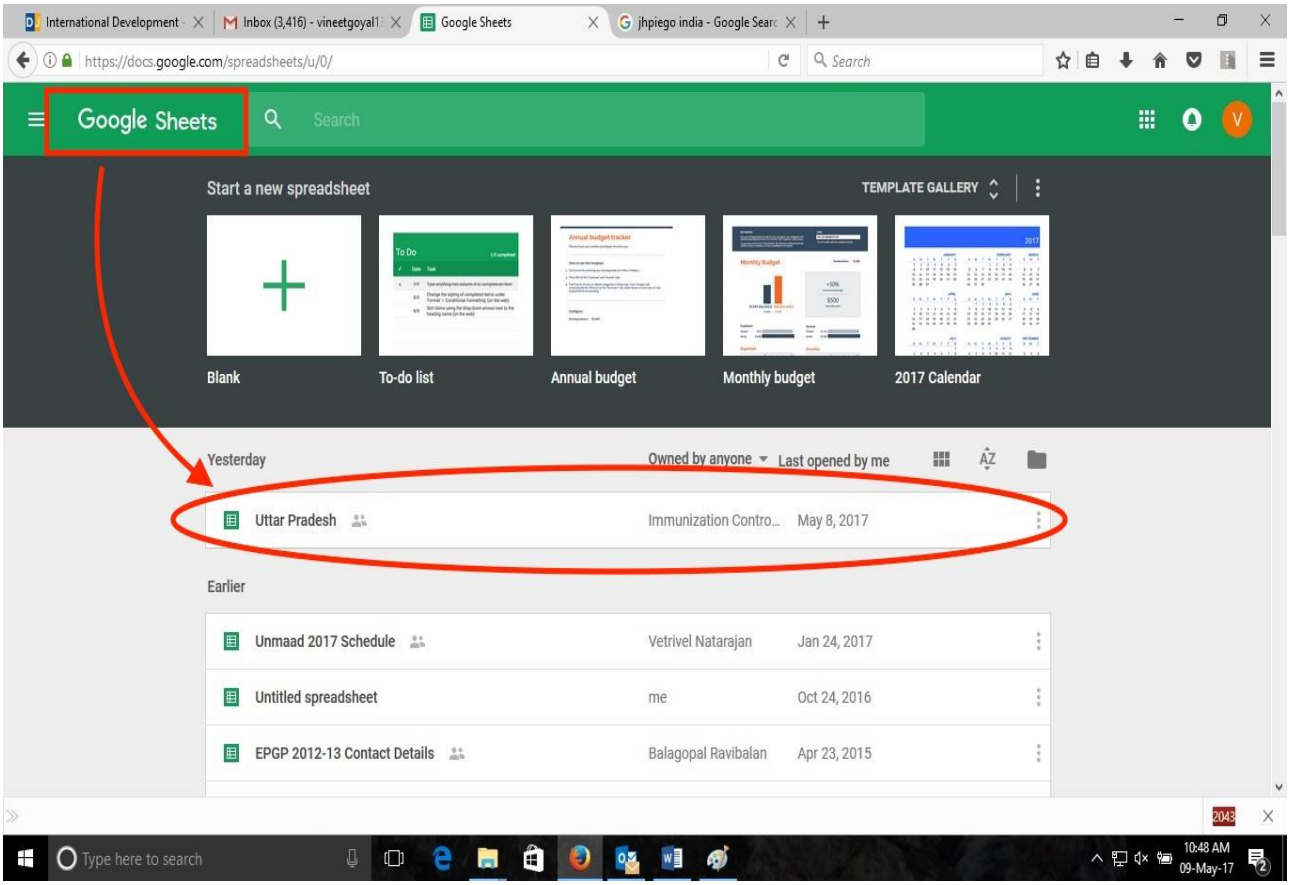
4. Google Docs will open in a new tab. Select the main menu for further options.



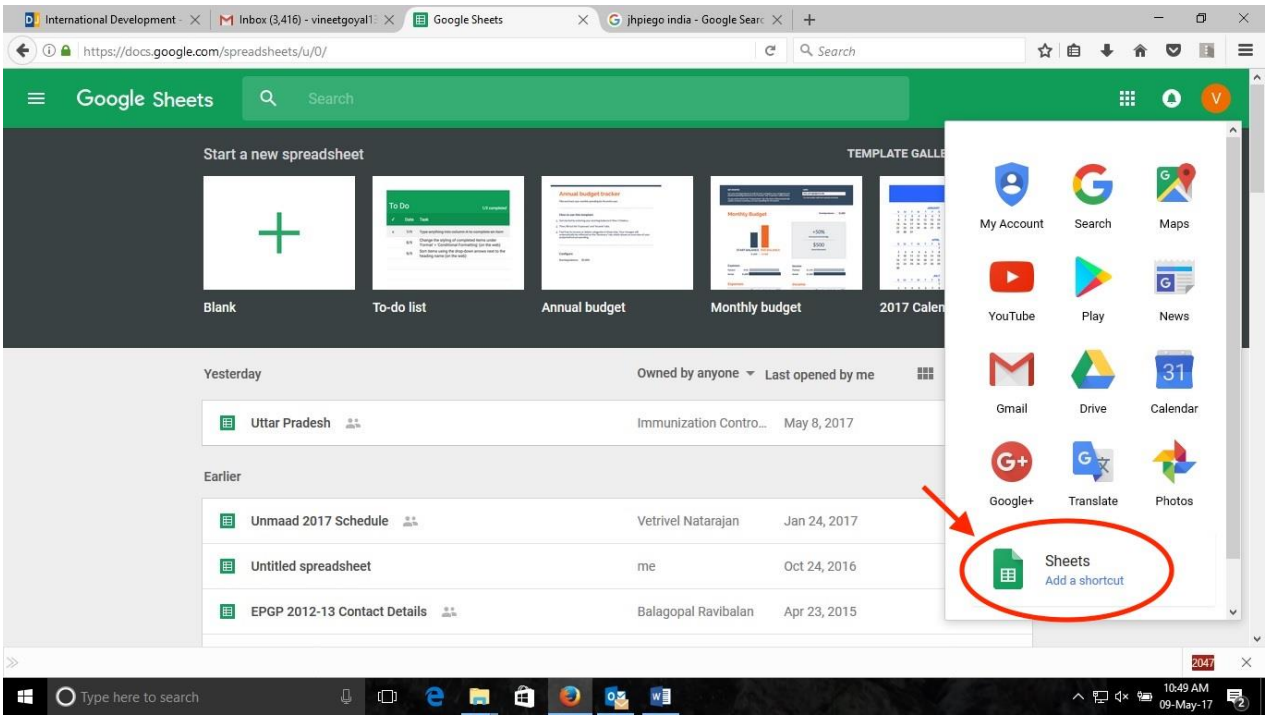
5. Select sheets from the drop-down menu.



6. Google sheets will open in the same tab having the sheet for the state. Select it to access the state's spreadsheet.



To make the access easier, user can add “sheets” in the main menu by adding it to shortcut. In that case: Then follow instruction 1 & 2 only.



DOs	DON’Ts
User need to put name of state, List of Districts of MI activity in that state in first sheet i.e. “District” sheet only.	State name, District names, Date, Phase & Round will be populated in all sheets automatically. So, don’t edit it.
Do check the date before entering data.	Don’t change the format of the sheet. Use ‘paste special only values’ option for pasting the copied data.
Leave the cell blank if required.	Don’t edit “Total” sheet.
	The user need not to send the sheet back by mail. It will automatically be updated in the system.

For any query or help, please contact: Dr. Vineet Goyal (+919811182376) or immcontrolroom@gmail.com

Section 4.02 Annexure B

- Six individuals were contacted from different departments of ITSU and those involved in implementation of new vaccines programmes & demonstration projects.
- Consent was taken from the interviewers via email.

S. No.	Key Interviewer	Designation
1.	Dr. Vineet Goyal	Associate advisor, POME
2.	Dr. Tapas Sadasivan Nair	State manager, Bihar, POME
3.	Dr. Kamlesh Kumar	State manager, UP, POME
4.	Jhimli Baruah	Manager, Strategic communication
5.	Dr. Ajit Shewale	Manager, AEFI
6.	Dr. Arup Deb Roy	Manager, VLCCM

Section 4.03 Annexure C

a. Were you involved in introduction of any new vaccine under UIP in the past two years?

b. How did the introduction of new vaccine roll out?

c. What challenges were encountered before, during or after its introduction regarding:

- Microplanning
- Selection of states & state preparedness
- Training of staff & human resources
- Service delivery
- Supervision
- Reporting & evaluation
- Social mobilization
- IEC & Social media
- Technical issues
- Cold chain management
- Availability & procurement of vaccines