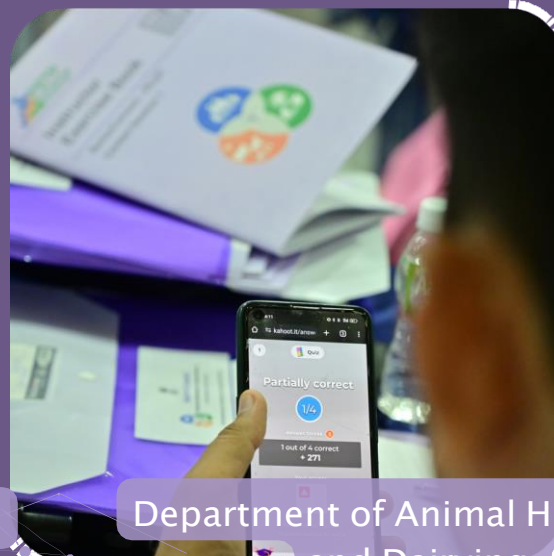


SECTORCONNECT

FIELD EPIDEMIOLOGY PROGRAMME IN ONE HEALTH (FEP OH)

Pilot Batch Report



National Centre for Disease Control
Dte. General of Health Services
Government of India

Department of Animal Husbandry
and Dairying,
Government of India

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BACKGROUND

The National Centre for Disease Control (NCDC), a premier public health institute of the Government of India, Delhi has a mandate to be a catalyst for a vibrant national health system through strengthening public health surveillance, outbreak investigation and response, and capacity building in applied epidemiology and public health with a one health approach. Keeping in line with these mandates, NCDC has successfully completed the 3x3 Frontline Field Epidemiology Training Program (FETP) across 124 districts in 8 states. This initiative has effectively trained over 300 district-level public health officers and engaged 73 mentors from medical colleges. Building upon this success, NCDC identified the need for multi-sectoral training, extending beyond the human health sector.

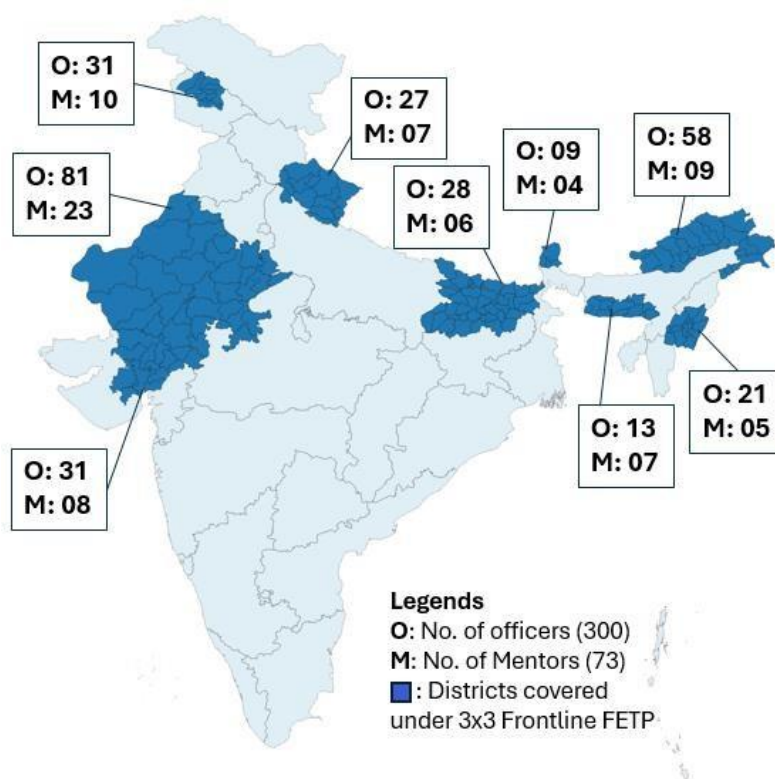


Figure 1: Officers and mentors trained in various districts under 3x3 Frontline FETP training

Recognizing the growing importance of the One Health approach, which integrates human, animal, and environmental health, NCDC initiated efforts to bridge gaps between sectors. Despite the global recognition of One Health's effectiveness, implementing it poses substantial challenges, particularly in coordinating efforts across traditionally separate sectors. Many countries lack formal mechanisms for collaboration, leading to fragmented responses to health issues. Although successful multi-sectoral collaboration has been observed during emergencies, these efforts often focus on response rather than prevention and preparedness.

In response to these challenges, NCDC in collaboration with the DAHD and CDC, India launched an umbrella of multi-sectoral field epidemiology training programmes - "SectorConnect: Enhancing Preparedness for Integrated Response". Under the SectorConnect umbrella, the Field Epidemiology Programme (FEP) OH has been introduced. SectorConnect FEP OH, designed on the successful model of 3x3 Frontline FETP, is a 3-month on-the-job training for district-level officers from all health-related sectors (public health, veterinary, wildlife, international health, food safety and others). This report documents the journey of the pilot batch1 and 2 of SectorConnect FEP OH. The pilot phase of SectorConnect FEP OH serves as a testament to the commitment towards fostering interdisciplinary collaboration and operationalizing One Health principles at the field level. Through SectorConnect, NCDC and DAHD seek to equip current professionals with the essential skills needed to address complex health challenges through integrated, multi-sectoral approaches.

THE SECTORCONNECT UMBRELLA

The “SectorConnect” umbrella two training programs (Field Epidemiology Programme in One Health or FEP OH and Field Epidemiology Fellowship in One Health or FEF OH) aimed at operationalizing One Health at the grassroots level by equipping the existing workforce with the necessary skills and fostering a sustainable network of professionals (Figure 1).



Figure 2: Training programmes under the SectorConnect Umbrella and their status

Conceived with the vision of transitioning from a reactive to a proactive multi-sectoral approach to health response, SectorConnect adopted "Purple" as its brand color - the color seen during dawn, marking a time of change.

The byline “Enhancing Preparedness for Integrated Response” represents the overarching goal of SectorConnect, which is - *Building a network and capacity of professionals across the human, animal and environmental health sectors to enable integrated response at field level across all sectors.*

To accomplish this mission, the SectorConnect initiative focuses on the following objectives:

1. Strengthening the capacity of systems to respond to public health threats through collaborative, multi-sectoral approaches.
2. Facilitating inter-sectoral coordination and promoting cross-sector learning.
3. Enhancing epidemiological skills among state, district, and field-level officers across various sectors to conduct joint risk assessments and outbreak investigations.
4. Facilitating the sharing of information across sectors to identify and respond to early warning signals effectively.
5. Improving skills related to evidence-based decision-making, communication, and transformational leadership.
6. Establishing a sustainable network of trained professionals across sectors to sustain collaborative efforts in addressing public health challenges.

DEVELOPMENT OF SECTORCONNECT FEP OH

The development of the SectorConnect FEP OH curriculum was a comprehensive endeavor that involved careful planning, stakeholder engagement, contextualization to the Indian health landscape, iterative design, piloting, and incorporation of feedback. Since a multi-sectoral training programme requires a multi-sectoral perspective, efforts were made to ensure representation from key institutions across sectors. The snapshot of this journey is given in Figure 1 and the detailed reports of the stakeholder engagement workshops can be accessed at <https://ncdc.mohfw.gov.in/wp-content/uploads/2024/04/Sector-Connect.pdf>.



Figure 3: The milestones in journey of development of SectorConnect FEP OH

There were many challenges in developing a multi-sectoral training programme. One was identifying the right people and right skills. Drafting a common curriculum for professionals from varied academic backgrounds, while keeping it relevant to the local (district-level health issues) was another challenge. Thus, the stakeholders were engaged strategically to overcome these issues, while ensuring the alignment of the training programme with national needs and international standards. Key highlights of these strategies are given below:

- 1st Stakeholder Engagement Workshop marked the collaboration of DAHD with NCDC, ensuring coordination at the national level while reducing any duplication of efforts.
- To leverage the existing resources (training material) and model of Field Epidemiology Training Programme, partnership was established with CDC India.
- To ensure that the curriculum aligns with the Quadripartite's Competencies for One Health field epidemiology (COHFE) framework, WHO India, FAO India and WOAHS South-East Asia Region were engaged.
- Key national and state level stakeholders were engaged to ensure alignment of the course structure to the right and relevant job profiles at the district level.
- For public health and veterinary sectors, care was taken to ensure representation from the field (state public health surveillance unit and state animal husbandry department), research (ICMR and ICAR institutes) and academia (medical and veterinary colleges) areas.
- For other sectors such as food safety and international health, officials from FSSAI and International Health Division, DGHS were engaged to identify the key skills required at the field level.

SECTORCONNECT FEP OH PROGRAMME DESIGN

OVERVIEW

This is a 3-month (or 12 week) on-the-job training for district-level officers from public health, veterinary, wildlife, food safety, international health and other departments. Typical of FETPs, during SectorConnect FEP OH also, the trainee officers spend about 10% time in the classroom or contact sessions (CS) and 90% of the time in the field completing their assignments under the mentorship of faculty from medical and veterinary college. These competencies are acquired through a combination of classroom learning and field assignments. During the contact sessions, trainee officers are taught specific concepts and trained in certain skill sets. These contact sessions are followed by field intervals, during which they get a chance to apply these concepts while carrying out field assignments. The field assignments are designed around the tasks involved in the day-to-day work of the trainee officers and focus on a health issue of priority to the district. The timeline of these activities and details of the modules and field assignment are given below:

The overview of the course timeline and activities is given below:

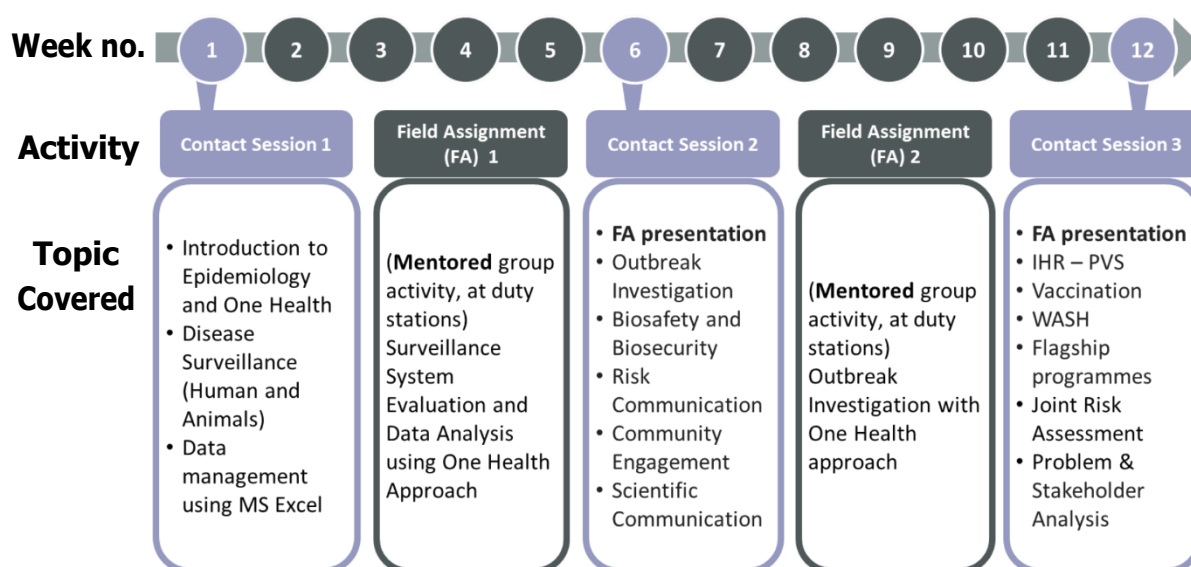


Figure 4: Timeline of activities during SectorConnect FEP OH

SECTORCONNECT "DISTRICT TEAM"

To ensure fostering of collaborations, the trainee officers participate in the training program as "District teams". A district team, in a typical SectorConnect FEP OH cohort, comprises of a district surveillance officer, district epidemiologist, district microbiologist and district veterinary officer. The team also has representation from wildlife, food safety and international health departments, depending upon the availability of officers from these departments in the respective district.

During all the contact sessions all the members of the "district team" are seated together and made to participate in classroom exercises as a team. The mentors of the respective district team also sits alongside the district team guiding them through classroom exercises and facilitating discussions within the team as and when required. This seating arrangement gives the district team members and the mentor to cultivate collaborative relationships, which facilitate their coordination during the field interval as well.

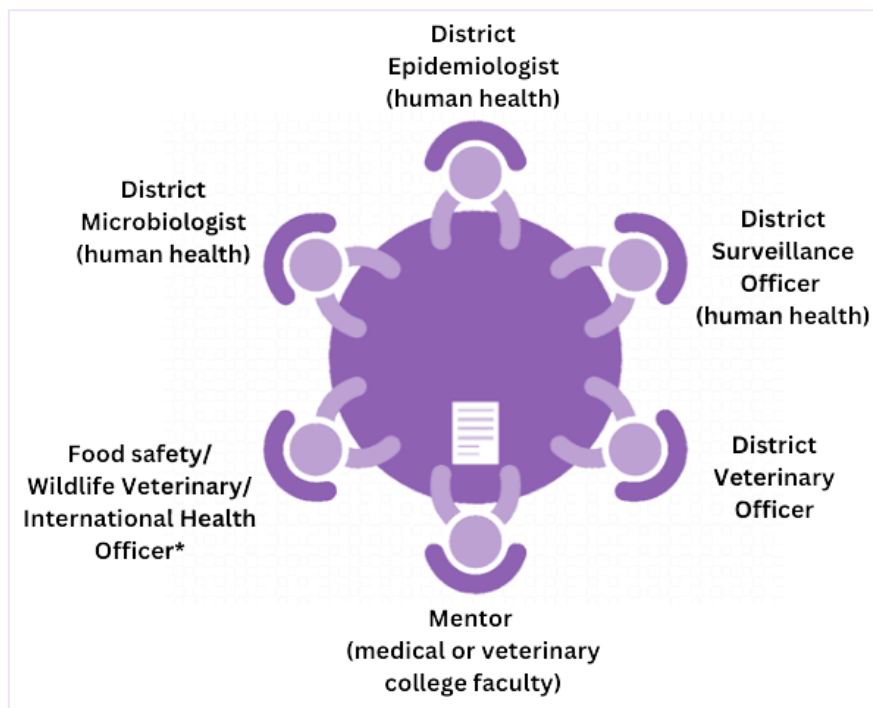


Figure 5: Seating arrangement and composition of a typical SectorConnect District team
(*depending upon availability of the officer in the respective district)

During the field interval, the district team members return to their respective duty stations and work on a common “field assignment”. For the field assignment the officers work on a health issue that is of priority in their district, thus getting a chance to understand the role of each sector on priority health issues. The mentors hand-hold the district teams and guide them through the assignment in a step-wise fashion. Support is extended to the mentors and the teams by the programme secretariat as well. The details of the mentorship are given in the later section. Thus, a SectorConnect district team, under mentorship, systematically learns and step-wise applies epidemiological concepts with a one health approach to real-life problems, or as we say a SectorConnect team “**learns by doing together**”. It is, thus a multi-sectoral team equipped with following competencies:

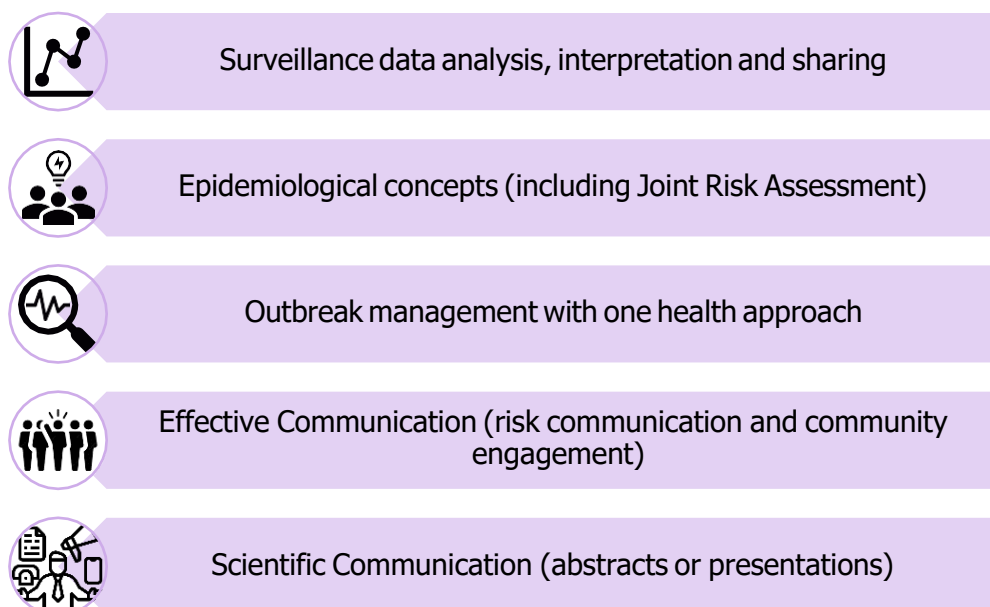


Figure 6: Core competencies acquired during SectorConnect FEP OH

CONTACT SESSIONS

There are a total of three contact sessions of three days each during the 12-week training of SectorConnect FEP OH. The trainee officers travel from their respective duty stations to the training venue, which is within the State itself. It is during the contact session that the trainee officers learn specific concepts and skills, which they later apply in field during their assignments. These concepts and skills are covered systematically through modules (developed in the form of presentations), exercises, quizzes, hands-on exercises and case studies. The details of the modules and the learning objectives are given in Table 1.

Table 1: Modules and respective learning objectives of SectorConnect FEP OH

S. No.	Module	Learning Objectives
Introduction to Epidemiology and One Health		
1	Introduction to Epidemiology	<ul style="list-style-type: none"> Define epidemiology and describe what each of the components of the definition mean Summarize the epidemiologic approach of a field epidemiologist Describe the application of epidemiology to the range of public health problems
2	Introduction to One Health	<ul style="list-style-type: none"> Describe One Health Approach Describe the foundation of One Health Explain what is a One Health team List down the common One Health issues Cite examples of successful One Health approaches
Disease Surveillance (Human and Animal) and Data Management		
3	Disease Surveillance	<ul style="list-style-type: none"> Understand One Health and its importance in the 6 steps of the disease surveillance cycle Summarize the key features of the International Health Regulations (2005) Summarize the key objectives of Terrestrial and Aquatic codes (WOAH) Identify and describe the flow of surveillance data in your area Summarize the purpose and use of local surveillance data
4	Collecting Surveillance Data	<ul style="list-style-type: none"> Identify the reportable diseases or conditions for your district Explain the difference between passive and active data collection Describe basic data collection methods Summarize the rationale for zero reporting Describe limitations of reporting systems and ways to improve reporting Describe why it is important to use a One Health approach to share data and information across relevant sectors
5	Case Definitions and Line Lists	<ul style="list-style-type: none"> Describe a case definition Explain why use of a consistent case definition is important for surveillance Determine if a patient or animal meets a case definition Enter data into a line list Apply a One Health approach to case definitions
6	Understanding Data Quality	<ul style="list-style-type: none"> Name and identify data quality issues that can affect disease surveillance reporting Describe some consequences of poor data quality

		<ul style="list-style-type: none"> • Explain the steps needed to promote good data quality
7	Summarising Data	<ul style="list-style-type: none"> • Explain the difference between quantitative and qualitative variables and how to summarize each • Explain and calculate: <ul style="list-style-type: none"> ◦ measures of central location: mean, median and mode ◦ measures of spread: range ◦ measures of disease frequency: ratio, proportion, rate, prevalence, incidence, attack rates, mortality rates, case-fatality rate
8	Displaying Data	<ul style="list-style-type: none"> • Explain the value of organizing and displaying data • Describe the methods for organizing and displaying data • Select a table, graph, or map that is appropriate for the data • Use paper and pencil to create tables, graphs, and maps • Incorporate One Health concepts into organizing and displaying data
9	Hands-On MS Excel	<ul style="list-style-type: none"> • Open a workbook, create and save a worksheet • Enter, edit, and format data in a database • Use formulas and functions to summarize and analyze data • Organize data by sorting and filtering • Chart data using a histogram and line graph • Use Excel to perform district data surveillance functions — enter, manage, and analyze data
10	Interpretation of Data	<ul style="list-style-type: none"> • Describe and interpret summarized data • Describe the use of thresholds when analyzing surveillance data • List possible reasons for an observed increase in reported cases • Incorporate One Health concepts into the interpretation of human, animal, and environmental data
11	Communicating Surveillance Information	<ul style="list-style-type: none"> • Explain the rationale for sharing disease surveillance information • Describe the target audience of disease surveillance data • Demonstrate why periodic reports are a fundamental component of effective disease surveillance systems • Identify how ministries can communicate surveillance data and collaborate on investigations using a One Health approach
12	Monitoring	<ul style="list-style-type: none"> • Identify <i>monitoring</i> and <i>evaluation</i> in the context of overseeing a surveillance system • Explain <i>indicator</i> and <i>target</i> in the context of monitoring a surveillance system • Recognize key indicators to monitor surveillance timeliness and completeness at the district level • Explain the actions that can be taken to improve district-level disease surveillance
Outbreak Investigation using One Health Approach		
13	Recognizing an Outbreak	<ul style="list-style-type: none"> • Determine when to investigate an outbreak • Develop clear investigation objectives • Determine when to investigate an outbreak • Develop clear investigation objectives • Understand when and how to initiate a coordinated One Health response to an outbreak

14	Outbreak Investigation: Descriptive Phase	<ul style="list-style-type: none"> • Identify the members needed for your outbreak investigation team • Confirm the existence of an outbreak • Construct an outbreak case definition • Find cases systematically • Develop an analysis plan • Summarize cases by time, place, and person
15	Outbreak Investigation: Analysis and Response	<ul style="list-style-type: none"> • Develop a hypothesis • Discuss ways to evaluate that hypothesis • Describe different modes of transmission of communicable diseases • Discuss strategies for outbreak control • Apply a One Health approach to an outbreak investigation and response
Laboratory Linkage, Biosafety and Biosecurity		
16	Linking with Laboratory	<ul style="list-style-type: none"> • Describe the interaction that should occur between epidemiology and laboratory staff <ul style="list-style-type: none"> ◦ on an ongoing basis ◦ when an outbreak investigation begins ◦ during the outbreak investigation ◦ after an outbreak investigation • Understand the common reasons for sample rejection
17	Biosafety and Biosecurity	<ul style="list-style-type: none"> • Define Biosafety and Biosecurity <ul style="list-style-type: none"> ◦ Laboratory setting ◦ Field Setting • Understand measures to be taken for Biosafety and Biosecurity <ul style="list-style-type: none"> ◦ Laboratory setting ◦ Field Setting
Communication		
18	Risk Communication and Community Engagement	<ul style="list-style-type: none"> • Describe various communication types (as part of health response) • Explain risk communication, misinformation, disinformation and community engagement • Understand the fundamentals of effective risk communication • Understand the fundamentals of community engagement • Use the basic participatory epidemiology methods • Apply the multisectoral, One Health approach to risk communication and community engagement activities
19	Scientific Oral Presentation	<ul style="list-style-type: none"> • Describe the characteristics of a strong presentation • List the steps of the presentation strategy • Develop a SOCO • Describe and organize a presentation using the traditional structure of a technical presentation • Deliver a brief presentation to an audience • Learn best practices for creating PowerPoint slides
Additional Topics (Contact Session 3)		
20	Introduction to Joint Risk Assessment	<ul style="list-style-type: none"> • Describe the JRA process • Explain the principles of risk assessment • Describe the risk pathway for zoonotic diseases • Formulate a risk assessment questions • Describe the steps to characterize the risk

		<ul style="list-style-type: none"> Enumerate the essentials components in technical reporting of JRA
21	Water, Sanitation and Hygiene (WASH)	<ul style="list-style-type: none"> Describe WASH-relevant public health problems Describe water safety and quality in promoting One health Explain Sanitation and wastewater related issues Monitoring of WASH services Burden of disease Environmental health in emergencies
22	International Health Regulations	<ul style="list-style-type: none"> Define the scope of IHR 2005 Understand the objectives of IHR 2005 Describe the role of NFP-IHR Define Public Health Emergency of International Concern (PHEIC) Understand how to use the decision instrument of IHR 2005 for assessment and notification of events to WHO that may constitute a PHEIC
23	IHR-Performance of Veterinary Services (IHR-PVS)	<ul style="list-style-type: none"> Define the scope of Performance Veterinary Services () Describe the purpose and tools of Performance Veterinary Services Inter-sector collaboration between IHR (WHO) and PVS(WOAH) Pathway
24	Vaccination	<ul style="list-style-type: none"> Describe the different strategies of vaccination for disease control and prevention Evaluate different vaccination approaches Describe the vaccination schedule for diseases List of vaccination programs implemented for the control of the disease
25	Problem Analysis	<ul style="list-style-type: none"> Analyze a single sector or a multisectoral public health problem systematically Identify and organize root causes of a problem by using a cause-and-effect diagram Differentiate causes between those you do and do not have control over Develop an improvement plan for an appropriate key cause
26	Stakeholder Analysis and Engagement	<ul style="list-style-type: none"> Describe the terms – “Stakeholder” and “Stakeholder Analysis” Understand why perform stakeholder analysis for one health issues List the steps of stakeholder analysis Identify, map and categorise stakeholders for one health issues

These modules are supplemented by exercise books, hard copy of which is distributed to the participants during the contact session. The exercises are based on real-life problems that the participants are expected to encounter as a part of their day-to-day job. Multiple exercises have been developed to facilitate inter-sectoral coordination wherein participants discuss and share the district-level information specific to their sectors among themselves.

The andragogy also involves interactive quizzes which are administered using the online platform Kahoot, hands-on sessions for MS Excel, and case studies on Disease Surveillance and Outbreak Investigation using One Health approach.

FIELD ASSIGNMENTS

To ensure that the trainee officers acquire the core competencies (Figure 6), topics covered during contact sessions are mapped to the subsequent field assignments.

Contact session 1 focuses on Disease Surveillance, following which the district team completes an assignment based on disease surveillance data analysis. Following are the mandatory activities for first field assignment:

1. Assessment of the reporting of zoonotic disease under a surveillance system for timeliness, completeness and zero reporting based on 3 months of surveillance data of their district.
2. Data Quality Audit based on visits to reporting sites (three each from medical and veterinary sector) to identify reporting issues.
3. Surveillance data analysis using the One Health approach.

Additionally, cross-sectoral surveillance system review is also encouraged depending upon the feasibility of exercise. A tentative step-wise timeline is also provided to the teams and mentors to facilitate planning.

Contact Session 2 focuses on Outbreak Investigation using One Health approach and community engagement, therefore the subsequent field assignment is based on applying the steps of same. District teams are encouraged to identify outbreaks from their surveillance data. But considering the time-bound nature of the activity, the teams may choose to investigate a cluster (not classifying as outbreak) or a case (for notifiable diseases such as rabies). In all the cases, they systematically apply the steps of outbreak investigation to their field investigation, and provide scientific conclusions and recommendations. The teams are encouraged to carry out risk communication and community engagement activity as a part of their health response to the investigation. The teams are provided with guides and templates to assist in their field assignment activities. The final deliverable of the assignment is a technical presentation (PowerPoint) which they deliver during the following contact session.

MENTORSHIP PROCESS

Mentorship is the cornerstone of FETPs, and SectorConnect builds on the same. The district teams are matched to a "Primary Mentor", who is usually a faculty from either medical or veterinary college preferably from the same district or a nearby district. In addition to the "Primary Mentor" the teams are also assigned a co-mentor. If the primary mentor of the team is a medical college faculty, the co-mentor is veterinary college faculty and vice-versa. This ensures that the team gets inter-disciplinary feedback for their assignment. The detailed roles of mentors and co-mentors during the contact session and field assignments (Table 2) are discussed with mentors during a "Mentor Orientation" workshop which is conducted a day prior to the first contact session.

Table 2: Roles and responsibilities of mentors during SectorConnect FEP OH

Mentor	Roles and Responsibilities
Primary Mentor	<p>Contact Session:</p> <ol style="list-style-type: none"> 1. Attend mentor orientation and understand the curriculum, roles and responsibilities. 2. Initiate group discussions during case studies 3. Help mentees with class exercises. 4. Lead the brainstorming and planning of activities for Field Assignments. <p>Field Assignments:</p> <ol style="list-style-type: none"> 1. Follow up with the mentees for completion of weekly targets. 2. Guide the completion of field assignment. 3. Clarify concepts wherever necessary. 4. Communicate to the faculty mentor for troubleshooting various issues (technical or administrative). 5. Supervise the development of presentations. 6. Approve the presentations developed.
Co-Mentor	<ol style="list-style-type: none"> 1. If the primary mentor is a faculty from Veterinary College then the co-mentor will be from Medical College and vice-versa. 2. The co-mentors of one group might be primary mentor for the other group (same pool). 3. Help the primary mentor in presentation development. 4. Fill in for the primary mentor in case of his/her unavailability (or else will not be in continuous contact with mentees). 5. Share resources with the mentor/mentee.

The programme secretariat provides continuous online support to the mentors and district teams during the field interval. The secretariat shares resources with the mentors to facilitate the mentorship process and sets weekly targets for the completion of field assignments. As and when needed, the secretariat connects the district teams to national and regional resource persons. The overview of the mentorship process in SectorConnect is outlined in Figure 7.

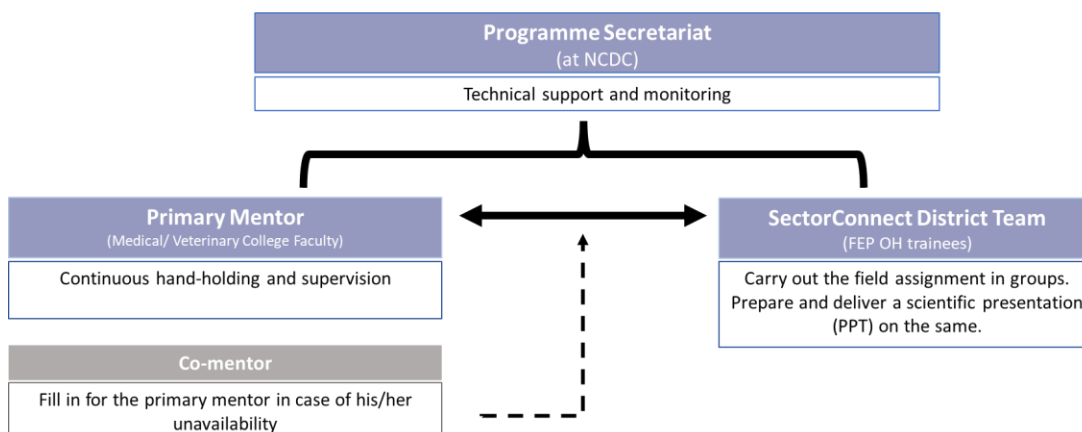


Figure 7: Mentorship process during SectorConnect FEP OH

ASSESSMENT AND FEEDBACK

Assessment and evaluations are instrumental in strengthening all kinds of training programmes. SectorConnect FEP OH conducts such assessments through the following modalities:

1. **Pre and post-test:** To gauge the increase in the component of “knowledge”, pre and post-tests are conducted during each contact sessions. The responses on pre and post-test are collected via Google Forms. The questions focus on key concepts to be covered during the specific contact session.
2. **Trainee and Mentor feedback:** Standardized structured feedback forms have been developed for each contact session. The forms collect feedback on various aspects of the training – logistics, content and delivery of modules. Feedback is collected from both the mentors and trainee officers via Google Form.
3. **Evaluation of field assignments:** The trainee officers deliver scientific presentations based on their field assignments. To assess the skills acquired, these presentations are evaluated. Evaluation of these assignments is done both objectively and subjectively in the following manner –
 - a. **Objective evaluation:** Scientific criteria-based evaluation checklists have been developed for objective assessment of the presentations. Both the content and delivery of the presentation are evaluated on a scale of 0-18 by a member of the SectorConnect programme secretariat. The team with the highest points is awarded the best presentation.
 - b. **Subjective evaluation:** To ensure that the trainee officers get feedback from the relevant stakeholders, the assignment presentation sessions are chaired by programme officials from national and state level. This feedback helps them understand how to best utilize their skills and knowledge for programme implementation.

CERTIFICATION

In order to successfully graduate and obtain the certificate of completion, the trainee officers have to meet the following criteria:

1. Attain 75% at least attendance in contact sessions (total duration of contact session = 9 days).
2. Carry out both the field assignments as a team member.
3. Prepare and deliver a mentor-approved field assignment presentation as a team member during the contact session.

PILOT BATCH 1

The training for Pilot batch 1 of SectorConnect FEP OH commenced during December 2023 and concluded in February 2024 (Figure 8a). The details of the participants and proceedings of the individual contact sessions are given in Annexures 1-4. The batch comprised of 37 officers and 11 mentors from 9 districts of Gujarat: Chhota Udepur, Dang, Valsad, Tapi, Narmada, Navsari, Dahod, Surat and Surat Municipal Corporation (Figure 8b).

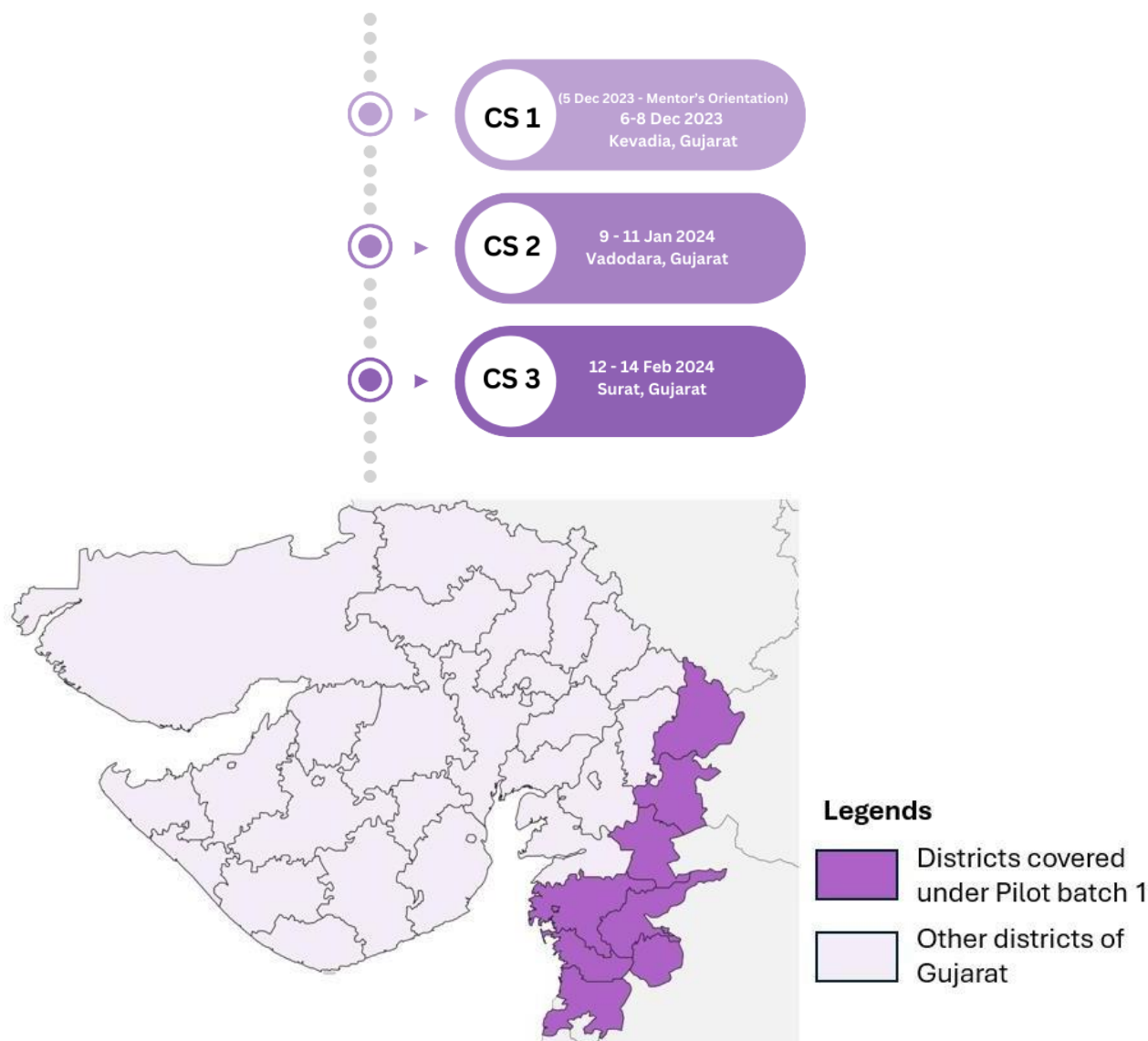


Figure 8: a. Timeline and venue of contact sessions of Pilot batch 1 of SectorConnect FEP OH
b. Districts covered under the Pilot batch 1 of SectorConnect FEP OH, Gujarat

Of the total, 29 officers were male, and 9 were female. 26 trainee officers were from human health sector, 9 from veterinary sector and two officers from international health department. The international health officers were paired with individual district teams. Observers from wildlife and food safety sector also participated. The field assignments completed by the officers is given in Table 3.

Table 3: Field assignments completed by officers of Pilot batch 1 of SectorConnect FEP OH

District Team	Field Assignment 1 (Surveillance Analysis and Information Sharing)	Field Assignment 2 (Outbreak Investigation using One Health Approach)
Chhota Udepur*	Surveillance analysis of Brucellosis in animals and humans, Chhotaudepur, Gujarat, 2020-2022	Investigation of Glanders Outbreak in a Brick Kiln in Sanand Taluka of Gujarat, Dec 2023 – Feb 2024
Dahod	Surveillance evaluation and analysis for Brucellosis in humans and animals, Dahod, Gujarat, Jan-Dec 2023	Dengue Outbreak Investigation in Dahod Urban Area, District Dahod, Gujarat, Jul to Dec 2023
Dang	Review of Brucellosis Surveillance, Dang, Gujarat, 2021 – 2023	Dengue outbreak investigation in Kanchanpada village, Dang, Dec 2023 to Jan 2024
Narmada	Surveillance of Brucellosis in humans and animals from Narmada, Gujarat, Dec 2022- Nov 2023	Dengue Outbreak Investigation in Rajpipla City Gujarat from Sep to Nov 2023
Navsari	Surveillance of Leptospirosis in humans and animals, Navsari, Gujarat, Jun to Oct 2023	Dengue Outbreak Investigation in Urban area of Vijalpore Navsari, Gujarat, Oct to Dec 2023
Surat**	Evaluation of surveillance system for Rabies, Surat, Gujarat, Apr 2022 to Mar 2023	Malaria Outbreak Investigation, Surat rural, Gujarat, Oct 2023 to Jan 2024
Surat Municipal Corporation	Surveillance analysis of human and animal Rabies, in Surat Municipal Corporation (SMC), Gujarat, from Jan to Dec 2023	Cluster Investigation of Dog-bite Cases Limbayat, Surat Municipal Corporation, Surat, Gujarat, Dec 2023
Tapi	Surveillance evaluation of Leptospirosis in humans and animals, Tapi, Gujarat, 2023	Dengue And LSD Outbreak In Urban Vyara Dist. Tapi Gujarat, Aug to Oct 2023
Valsad	Review of Leptospirosis surveillance in humans and animals, Valsad, Gujarat, Dec 2023	Outbreak investigation of Dengue and Lumpy Skin Disease, Valsad, Gujarat, Jan 2024

*Team members also included Airport Health officer from Ahmedabad and Veterinary officer from Gandhinagar

**Team members also included Port Health officer from Kandala

Overall, the training was received well by the trainee officers, mentors and state officials. The feedback on key skills (related to disease surveillance and outbreak investigation) acquired by the participants during contact sessions are given in Figures 9 and 10.

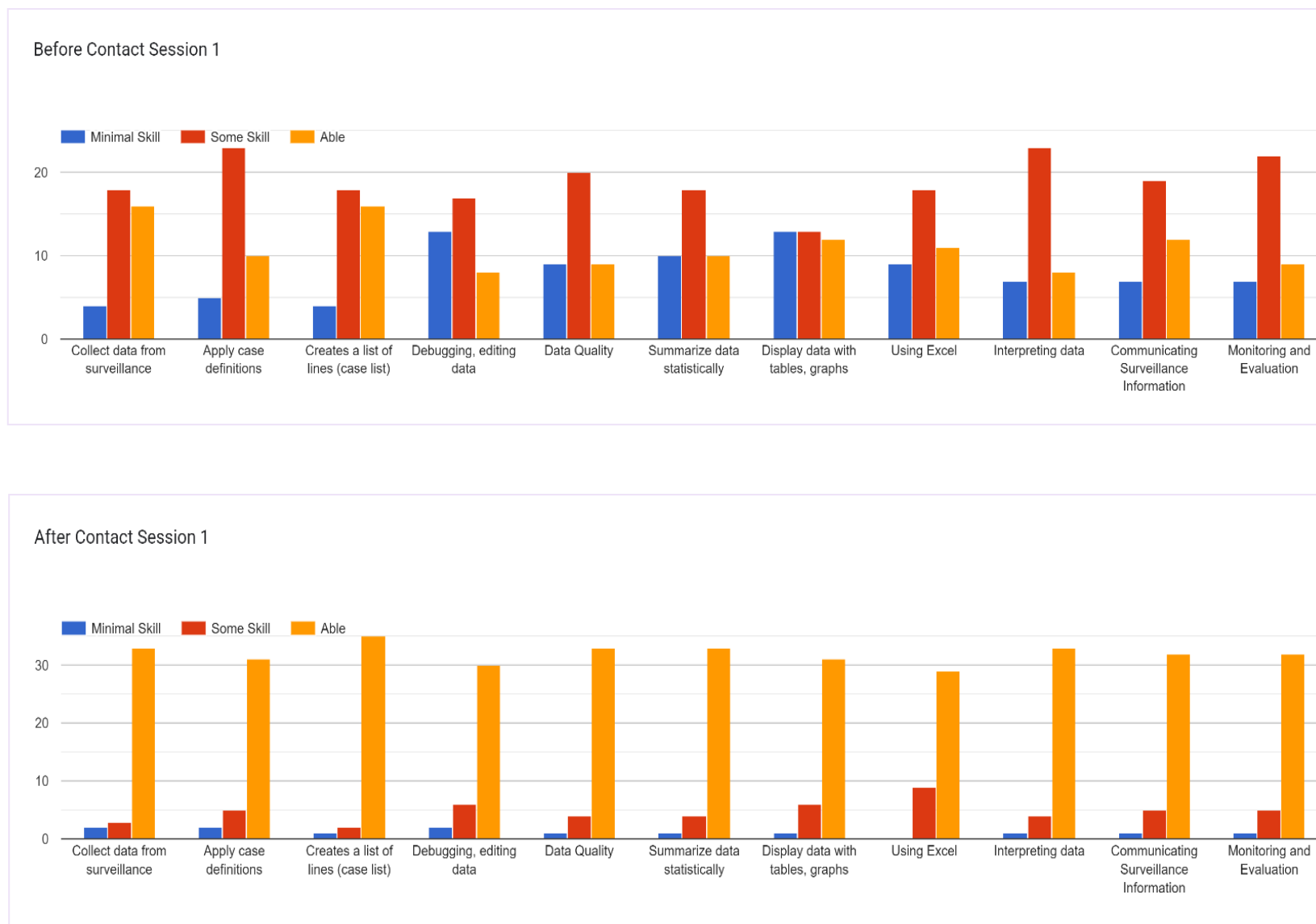


Figure 9: Ability of the trainee officers of Pilot batch 1 to perform key skills related to disease surveillance before and after CS 1 of SectorConnect FEP OH

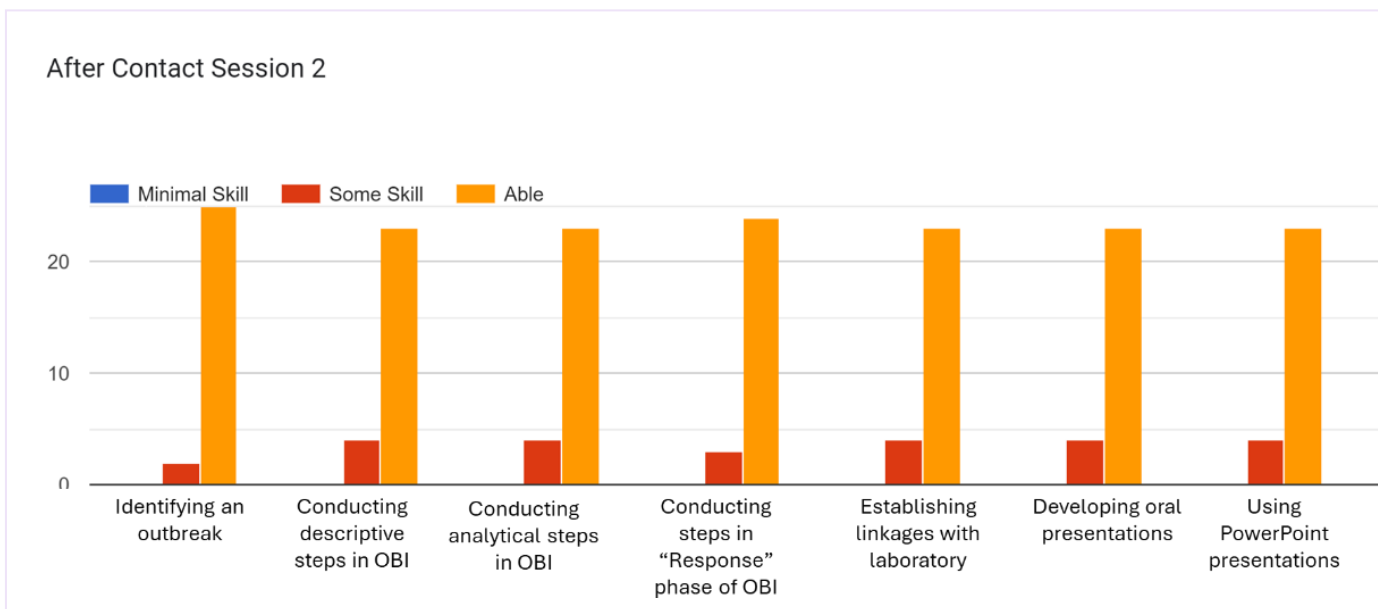
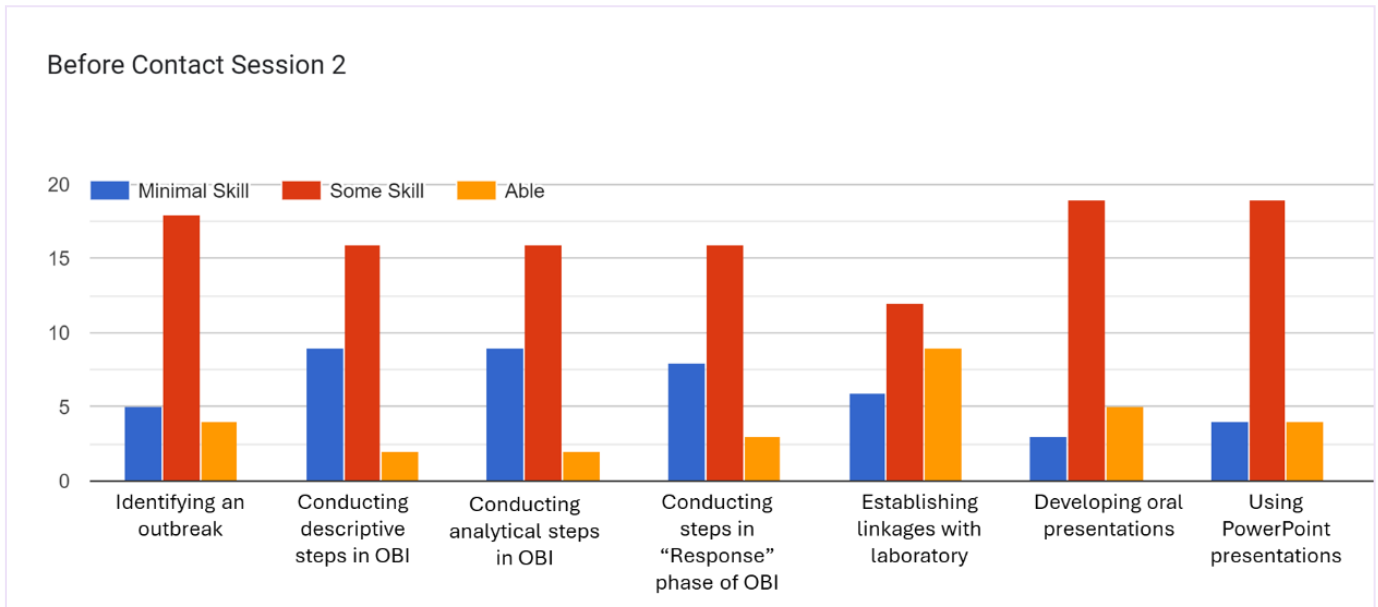


Figure 10: Ability of the trainee officers of Pilot batch 1 to perform key skills related to outbreak investigation before and after CS 2 of SectorConnect FEP OH



Group photo of the participants, facilitators and organizers during the 1st Contact Session of SectorConnect FEP OH Pilot batch 1, Kevadia, Gujarat, December 6-8, 2023

PILOT BATCH 2

The training for Pilot batch 2 of SectorConnect FEP OH commenced in January 2024, and so far two contact sessions have been completed. (Figure 11a). The details of the participants and proceedings of the individual contact sessions are given in Annexures 5-7. The batch comprised of 36 officers and 7 mentors from 8 districts of Gujarat: Amreli, Bharuch, Bhavnagar, Bhavnagar Municipal Corporation, Morbi, Panchmahal, Vadodara and Vadodara Municipal Corporation (Figure 11b).

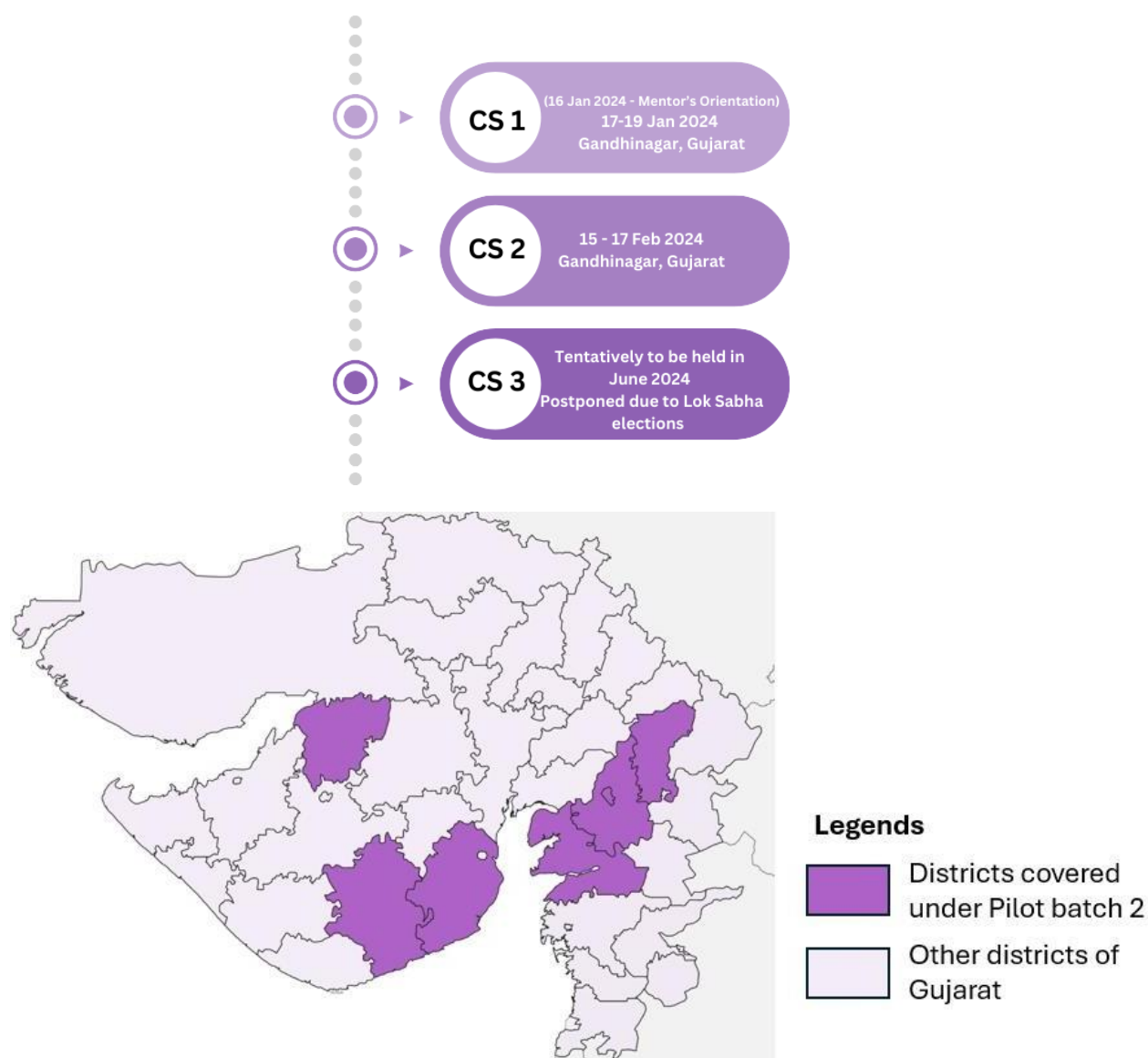


Figure 11: a. Timeline and venue of contact sessions of Pilot batch 2 of SectorConnect FEP OH
b. Districts covered under the Pilot batch 2 of SectorConnect FEP OH, Gujarat

Of the total, 25 officers were male, and 11 were female. 25 trainee officers were from human health sector, 7 from veterinary sector, two each from international health department and food safety sector, and one from wildlife sector. The international health, food safety and wildlife officers were paired with individual district teams. The field assignments completed by the officers is given in Table 4.

Table 3: Field assignments completed by officers of Pilot batch 2 of SectorConnect FEP OH

District Team	Field Assignment 1 (Surveillance Analysis and Information Sharing)
Amreli*	Crimean Congo Hemorrhagic Fever Surveillance System Evaluation, Amreli, Gujarat 2023
Bharuch	Evaluation of Avian Influenza Surveillance System, Amod taluka, Bharuch, Gujarat, Oct-Dec, 2023
Bhavnagar**	Review of Crimean Congo Hemorrhagic Fever Surveillance System, Bhavnagar, Jan 2024
Bhavnagar Municipal Corporation#	Review of Acute Diarrhoeal Disease Surveillance, Bhavnagar Municipal Corporation, Jan 2024
Morbi	Surveillance analysis of Brucellosis in Animals and Humans, Morbi District, Gujarat, Jan to Dec 2023
Panchmahal	Surveillance System Evaluation of Dengue (Humans) and Lumpy Skin Disease (Animals), Panchmahal, Gujarat, Aug to Oct 2022
Vadodara**	Evaluation of Surveillance System for Rabies in Humans and Animals, Vadodara, 2024
Vadodara Municipal Corporation#	Assessment of Typhoid surveillance, Vadodara Municipal Corporation (West Zone), Gujarat, June – August 2023

*Team members also included Wildlife and Forest officer

**Team members also included Airport Health officer from Kandala

#Team members also included Food Safety officers

Overall, the training was received well by the trainee officers, mentors and state officials. The feedback on key skills (related to disease surveillance and outbreak investigation) acquired by the participants during contact sessions are given in Figures 12 and 13.

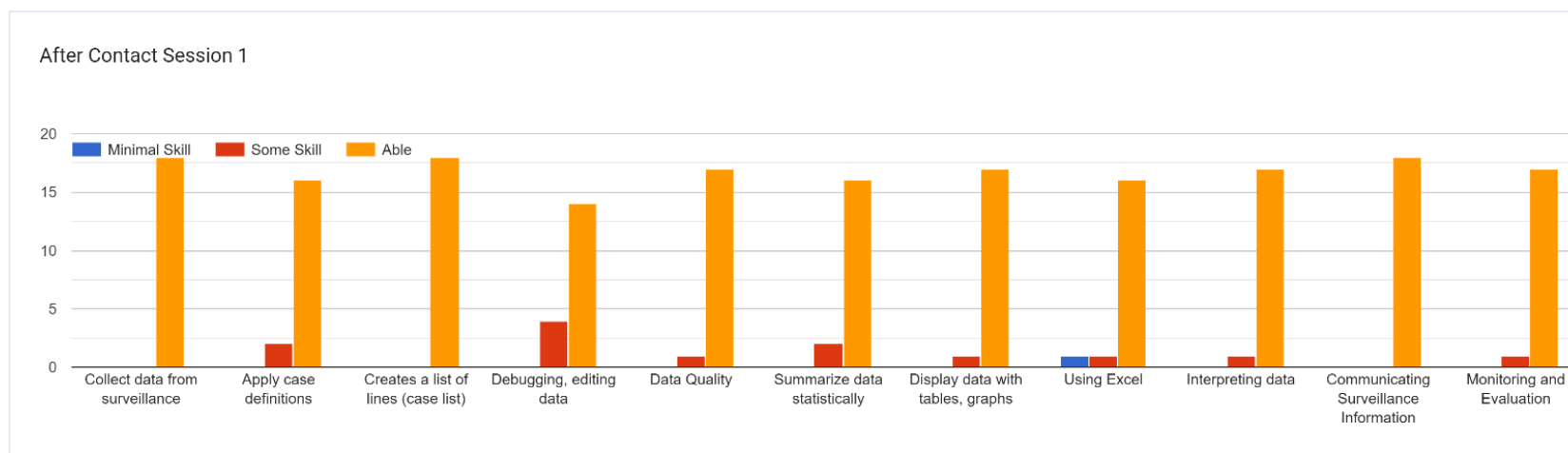
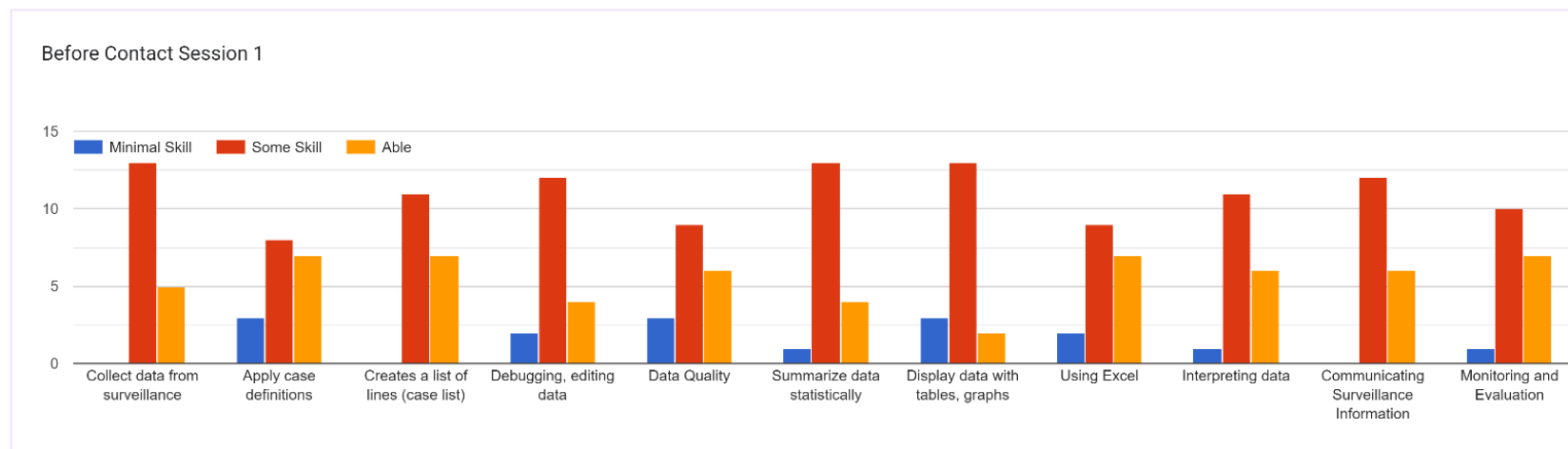


Figure 9: Ability of the trainee officers of Pilot batch 2 to perform key skills related to disease surveillance before and after CS 1 of SectorConnect FEP OH

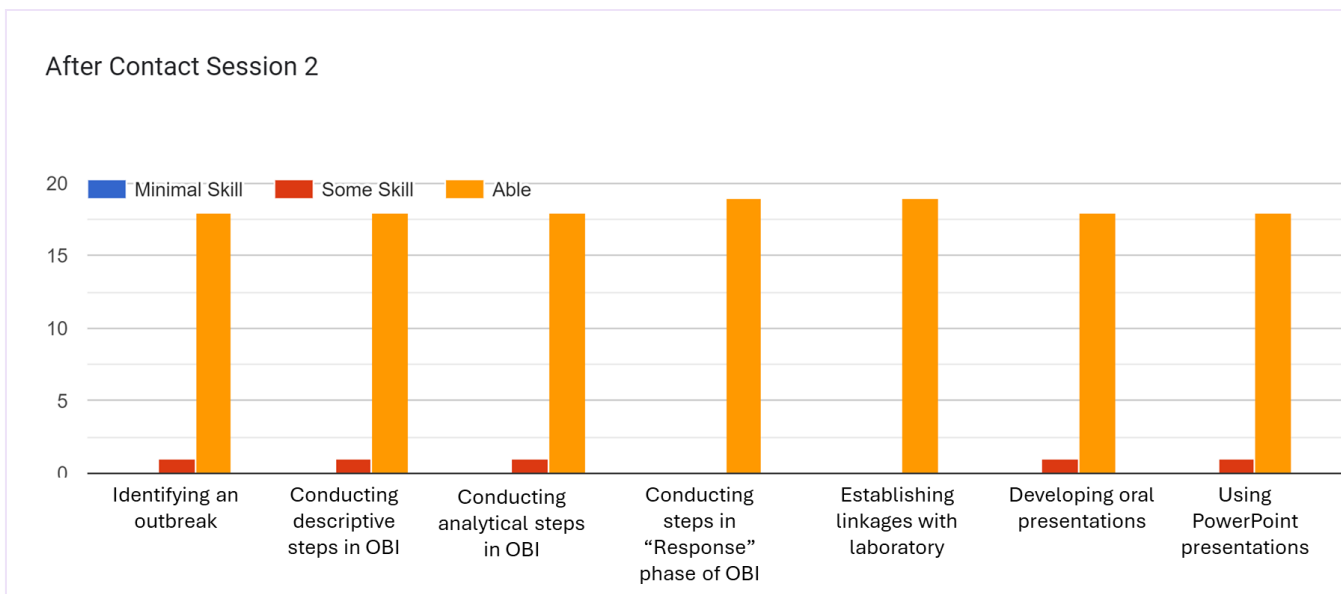
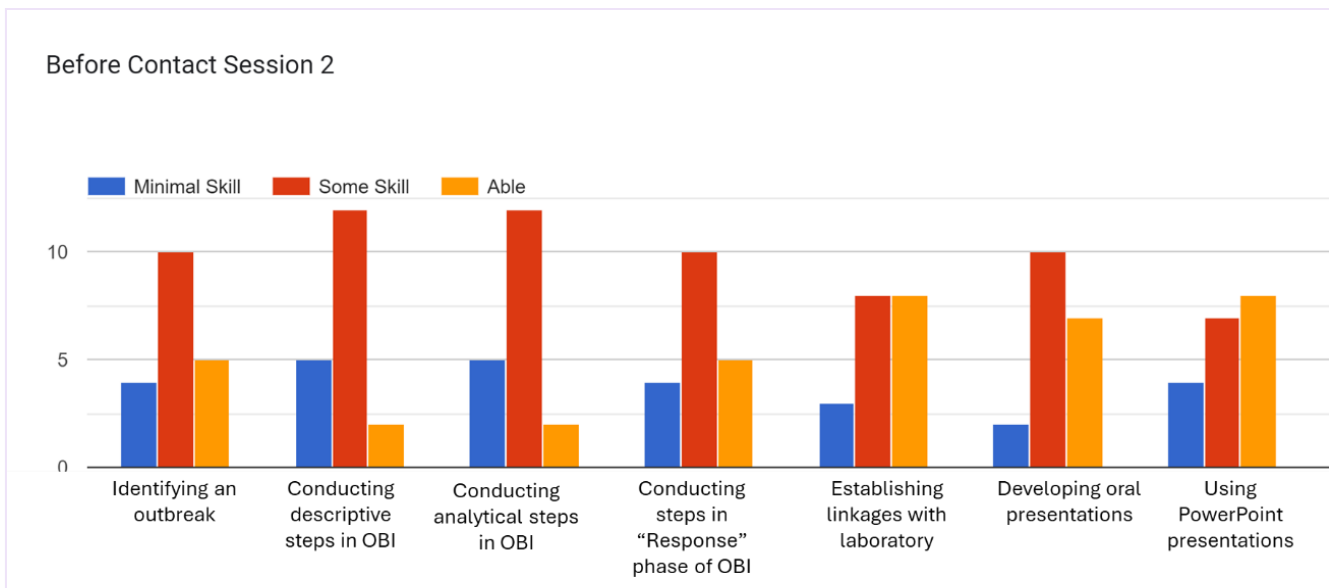


Figure 13: Ability of the trainee officers of Pilot batch 2 to perform key skills related to outbreak investigation before and after CS 2 of SectorConnect FEP OH



Group photo of the participants, facilitators and organizers during the 1st Contact Session of SectorConnect FEP OH 2nd batch, Gandhinagar, Gujarat, January 17, 2024

ANNEXURE 1: PROCEEDINGS OF CONTACT SESSION 1 OF PILOT BATCH 1

Mentors Orientation Workshop (05.12.2023)

Registration and training material: The mentors registered and marked attendance for the workshop and received instructor copies of various training materials.

Dr Jayesh Solanki and Dr Amit Kanani welcomed the gathering. Dr Solanki highlighted their experience with 3X3 Frontline FETP and wished the best for SectorConnect FEPOH training program.

The Mentors Orientation Workshop started with Dr. Shaileja Yadav engaging the mentors by playing a small interactive game based on Johari Window to encourage interaction among mentors from diverse sectors.

Dr. Ameya Vaze then led by opening the house for discussing One Health and the role of epidemiology. It was followed by a quick interactive quiz (via Kahoot) to refresh 'One Health' concepts.

Dr Bhavesh then led an interactive talk on SectorConnect mentorship. He started by outlining the SectorConnect FEPOH objectives and timeline. Mentors were briefed about the importance of mentorship in this training program.

Dr Anamika Sahu then outlined the learning objectives of Contact Sessions 1, 2, and 3. She highlighted how practical real life case scenarios and examples along with interactive training methodologies will be used to improve understanding for the adult learners.

Then, Dr Shaileja elaborated on the field assignments focusing on data collection for disease surveillance and conducting a joint outbreak investigation. She shared how "learning by doing together" forms the core of this training program.

Dr Bhavesh, Dr Shaileja, Dr Ameya and Dr Anamika then elaborated on mentors' roles and responsibilities during contact sessions and field assignments. Emphasis was put on responsibilities like ensuring timely submission of approved field assignment presentations, maintaining regular communication, monitoring mentees' progress, and providing crucial epidemiological support.

Dr Sukarma Tanwar invited the mentors for any doubts and clarifications and highlighted how their role will be crucial for the success of this program.

Dr Priyanka Kundra thanked all the mentors and facilitators for their active participation in the workshop. She expressed gratitude to the state leadership for launching the pilot program.

Day 1 (06.12.2023)

Inaugural Session

Day 1 started with the inaugural session which was graced by the following dignitaries –

1. Prof (Dr) Atul Goel, DGHS & Director, NCDC
2. Dr Anil Kumar, Principal Advisor, NCDC, Delhi
3. Dr Aruna Sharma, Dy. Commissioner (LH), DAHD (**joined virtually**)
4. Dr Simmi Tiwari, Joint Director & HOD, NCDC, Delhi
5. Dr Meera Dhuria, Joint Director, NCDC, Delhi
6. Dr Sanket Kulkarni, Joint director, IDSP, NCDC
7. Dr Jayesh Solanki, State Epidemiologist, IDSP, Gujarat
8. Dr Amit Kanani, Deputy Director, Animal Husbandry Department, Gujarat
9. Dr. Runa Hatti Gokhale, Associate Director of Science and Programs, CDC India
10. Dr. Kristin VanderEnde, FETP Resident Advisor, CDC-DGHP India

Dr Priyanka Kundra extended the formal welcome to all. This was followed by a brief green welcome ceremony, wherein the state officials presented saplings to the dignitaries as a token of gratitude.

Dr Amit Kanani extended a gracious welcome to all, acknowledging and commending the inaugural SectorConnect training program in Gujarat. He highlighted the achievements and commitment of the government in this regard, which is reflected in the support NCDC and Department of Animal Husbandry and Dairying focussing on One Health approach.

Dr Jayesh Solanki expressed his happiness and gratitude to be a part of SectorConnect training programme after attending 3x3 Frontline FETP Cohort and welcomed the participants and mentors. He further discussed the role of various sectors including the human, animal wildlife and environment in disease prevention and control.

Dr Kristin VanderEnde outlined the FETP training program's role and extended congratulations for the first SectorConnect training. She highlighted how cross-sector collaboration will enhance disease surveillance and facilitate joint outbreak investigations, emphasizing the program's significance in fostering multidisciplinary approaches to public health challenges.

Dr Runa Hatti Gokhale discussed global health security and pandemic preparedness, highlighting the pivotal role of SectorConnect training in enhancing readiness and response to pandemics, emphasizing its contribution to bolstering global health security measures.

Dr Sanket Kulkarni highlighted the crucial role of Integrated Health Information Platform (IHIP) in promptly detecting and monitoring infectious diseases nationwide. He underscored the ability of IHIP in streamlining data processes, enabling effective sharing among diverse health stakeholders, ultimately enhancing public health response and management.

Dr Simmi Tiwari reinstated the importance of One Health, shedding light on zoonotic diseases affecting both human and animal health. She emphasized the collaboration of multiple sectors in managing and controlling these diseases for effective prevention and mitigation strategies, and gave an overview of the Centre for One Health's initiatives in the country.

Dr Meera Dhuria provided an introductory overview of the SectorConnect training, its inception and the overall objectives of the training program. She elaborated on the lessons learnt from the 3x3 Frontline FETP training, and how SectorConnect was built on its successful model.

Dr Anil Kumar focused on the need for developing One Health capacity through collaborative efforts. He urged everyone to break the silos, and work towards the common goal of ensuring the well being of all through One Health approach.

Prof (Dr) Atul Goel, emphasized the ongoing capacity building in epidemiology, extending from FETP to SectorConnect training, highlighting the significance of interdisciplinary collaboration among diverse sectors and expressing optimism for the training program's success.

Dr Meera Dhuria concluded the ceremony with the vote of thanks, wherein she thanked all the guests and the participants, wishing them luck for the first contact sessions SectorConnect and field assignments ahead.

Post the inaugural session, everyone gathered for a group photograph and high tea.

Icebreaker session

Following the tea break, Dr Amit Kanani and Dr. Ameya Vaze initiated an interactive Icebreaker session on Avian Influenza surveillance, covering steps in disease surveillance across human and animal sectors, steps for information sharing, and the diverse stakeholders engaged during an outbreak. The session discussions were supplemented by Dr Simmi Tiwari as well. It saw huge interest and active participation from the mentors and trainees.

Technical Sessions

Dr Priyanka Kundra initiated the technical sessions by revising the basics of epidemiology and going through each component of the definition of epidemiology. The application of epidemiology to the range of animal and human health problems was discussed in detail. The concept of Count, Divide and Compare (CDC) in epidemiology along with discussion about the epidemiological triad, epidemiology of communicable disease was carried out.

Dr. Simmi Tiwari commenced the session by centering the discussion on One Health, elucidating its definition, addressing key issues, and exploring the varied approaches integral to this interdisciplinary framework. She highlighted various national level initiatives taken by the Centre for One Health to propagate this agenda. This was followed by lunch.

Post lunch, session on the utilities, updates, and feedback regarding the IHIP portal by Dr Sanket Kulkarni. Live examples from the IHIP dashboard were demonstrated in presence of the State Surveillance Unit and issues were discussed. In a very simple way, issues related to operating the portal, data entry, mapping of laboratory or a site in the portal, and monitoring indicators on the IHIP dashboard were also discussed. This was followed by a quick tea break.

For the final session of the day, Dr Ravinder Singh took a session on Disease Surveillance. This included a discussion on the importance and objectives of disease surveillance, and steps of the surveillance cycle, reportable disease in human and animal sector followed by exercise based on completing a surveillance case report form marking the conclusion of Day 1's activities.

Day 2 (07.12.2023)

The day 2 started with a recap of topics discussed on day 1 by Dr Anamika and Dr Ameya. The technical sessions proceeded as follows:

Dr Mudasser Chanda and Dr Shaileja Yadav facilitated the session on data collection reflecting on the next step of disease surveillance cycle following case detection. The session started with identifying reportable diseases under Integrated Disease Surveillance Program (IDSP) and Animal Disease Surveillance Report (ADSR). The importance of Zero reporting was highlighted by the facilitators. Examples highlighting the importance of collecting geospatial data were also shared with the participants. Exercises to understand disease reporting practices and completing a case report form were conducted.

A session on data quality followed a small break for tea, facilitated by Dr Prejit Nambiar and Dr Kevisetuo. They highlighted the importance of maintaining quality of collected data and its impact on subsequent steps in the surveillance cycle. Various issues of data quality and common errors were discussed. Strategies to promote and ensure good quality using monitoring indicators were presented to the participants.

Next, Dr Adhiraj Mishra apprised the audience regarding the National Digital Livestock Mission (NDLM). He highlighted various innovative approaches and newer developments being undertaken by the Department of Animal Husbandry and Dairying in this regard. Following a lunch break, a session on case definitions and line lists was taken by Dr Bhavesh and Dr Ameya Vaze. The importance of using a consistent case definition was highlighted after showcasing various examples of suspect, probable and confirmed case definitions used in human and animal disease surveillance systems. The importance of a line list in surveillance and the variables to be added to a line list were further discussed. Participants were also given hands-on exercises on case definitions and line list generation.

Then a session on data summarisation was undertaken by Dr Tushar Nale and Dr Ameya Vaze. Discussion included various types of variables, measures of central location such as mean, median, mode and measures of spread like range with examples. Various measures of disease frequency like incidence, prevalence, attack

rates and case fatality rates were explained to the officers with their active participation. Participants were also given exercises to identify the type of variables and were given hands-on training to calculate the measures of frequency and central location.

After a short tea break, Dr Shaileja Yadav took a session on displaying data. Tables, graphs, as well as the use of maps to display the data and their appropriate usage, were discussed at length. Finally, Dr Ameya facilitated a hands-on session on using MS Excel to manage tabular data and prepare appropriate graphs and charts using it.

Day 3 (08.12.2023)

To start the final day, Dr Anamika and Dr Ameya conducted a quick recap of day 2 with the participants. Technical sessions were taken as follows:

Dr Mudasser and Dr Ravinder Singh facilitated a session on data interpretation. Highlighting the importance of using thresholds, possible reasons for observed rise in case reporting were discussed. Finally, a discussion on the importance of following the one health approach was emphasised during all steps of the surveillance cycle.

Dr Ameya led the next session on monitoring of surveillance systems. IDSP-IHIP monitoring indicators were demonstrated and discussion on the use of specific indicators i.e. timeliness and completeness of the surveillance system was led. Exercise to calculate said indicators was also done.

The next session on communication of surveillance information was taken by Dr Shaileja Yadav. The various kinds of target audience and the importance of periodic reports were discussed. Discussion followed on the points of data sharing and coordination between the partner sectors.

Following the tea break a long interactive discussion on a case study on Avian Influenza Surveillance was led by Dr Ameya Vaze. All the facilitators and trainees participated in this exercise. The main objectives of this case study were to describe the steps of the surveillance cycle, to describe the purpose and use of the local surveillance data and to emphasize the importance of one health approach. The participants were guided to complete a surveillance case report form and to calculate the incidence and case fatality rates. They were also guided as to how to identify and correct data errors and to summarise as well as interpret surveillance data by time, place and person distribution using rates, tables and graphs. After breaking for lunch, Dr Shaileja oriented the mentors and the trainees to the field assignments and the expected outcomes before the next contact session. The participants will present their work (a PowerPoint presentation) as teams during contact session-2. The field assignments will be mainly to describe the disease surveillance in their district, analyse the disease surveillance data, assess data quality and suggest recommendations to improve the surveillance/data quality.

The participants then exchanged their contact information and formed district-wise 'whatsapp' groups for easy communication for carrying out their field assignment. They also completed a post-test and provided their feedback through a google form. After the technical sessions, Dr Jayesh Katira addressed the gathering and motivated the participants to accomplish the goals of this training program. He thanked all the facilitators and observers for contributing to the training program. Dr Amit Kanani shared his experience as a mentor and appreciated the active participation of all the trainees and mentors. Dr Adhiraj Mishra expressed his gratitude to the officials of Gujarat for agreeing to pilot the training program. Dr Kristin VanderEnde emphasized the importance of participatory approach for adult learning and how field epidemiology contributes to the betterment of society. Dr Anil Kumar shared several anecdotes from his immense experience as a national level public health leader. In the end, Dr Sukarma Tanwar, on behalf of the entire SectorConnect FEP OH team thanked all the participants, mentors, and expert stakeholders and expected that all the participants will learn basic skills from this contact session on epidemiology and apply these skills at the district level data collection, analysis, interpretation as well as the use of excel in the surveillance.

Mentors Orientation Workshop - Agenda

Date: 5 December 2023

Venue: The Fern Sardar Sarovar Resort, Ekta Nagar (Kevadia), Gujarat

Time	Agenda	Facilitator
01:00 – 02:00 PM	Lunch	
02:00 – 02:30 PM	Registration and introduction	Dr Shaileja
02:30 – 02:45 PM	Group Discussion: One Health Epidemiology	Dr Ameya
02:45 – 03:00 PM	Introduction to SectorConnect FEP-OH and mentorship	Dr Bhavesh
03:00 – 03:15 PM	Orientation to modules of SectorConnect FEP-OH	Dr Anamika
03:15 – 03:45 PM	Brief on Field Assignments	Dr Shaileja
03:45 – 04:00 PM	Roles and responsibilities of FEP-OH mentors	Dr Bhavesh
04:00 – 04:15 PM	Feedback and discussion	Dr Sukarma Tanwar
04:15 – 04:30 PM	High tea	

1st Contact Session - Agenda

Dates: 6 – 8 December 2023

Venue: The Fern Sardar Sarovar Resort, Ekta Nagar (Kevadia), Gujarat

Date and time	Agenda	Facilitator/s
Day 1: 6 Dec 2023		
09:00 – 09:30 AM	Registration and Pre-test	Programme Secretariat
09:30 – 10:30 AM	Inauguration	
10:30 – 10:45 AM	Group photograph and high tea	
Chairperson: Prof (Dr) Atul Goel Co-chairperson: Dr Anil Kumar		
11:20 – 12:45 PM	Ice breaker session	Dr Amit Kanani and Dr Ameya Vaze
12:45 – 01:15 PM	Introduction to Epidemiology	Dr Priyanka Kundra and Dr Ameya Vaze
01:15 – 02:10 PM	National One Health Program for Prevention and Control of Zoonoses	Dr Simmi Tiwari
02:10 – 02:30 PM	Lunch Break	
02:30 – 03:20 PM	IDSP-IHIP	Dr Sanket Kulkarni
03:20 – 04:50 PM	Disease surveillance	Dr Ravinder Singh and Dr Ameya Vaze
04:50 – 05:00 PM	Tea break	
Day 2: 7 Dec 2023		
Chairperson: Dr Anil Kumar Co-chairperson: Dr Kristin VanderEnde		
09:00 – 09:25 AM	Recap quiz	Dr Anamika Sahu
09:25 – 11:10 AM	Data collection	Dr Mudasser Chanda and Dr Shaileja Yadav
11:10 – 11:25 AM	Tea break	
11:25 – 12:35 PM	Data quality	Dr Prejit Nambiar and Dr Kevisetuoe
12:35 – 01:00 PM	NDLM	Dr Adhiraj Mishra
01:00 – 01:50 PM	Lunch break	

Date and time	Agenda	Facilitator/s
01:50 – 02:45 PM	Case definition and line list	Dr Bhavesh and Dr Ameya Vaze
02:45 – 04:15 PM	Data summarisation	Dr Tushar Nale and Dr Ameya Vaze
04:15 – 04:25 PM	Tea Break	
04:25 – 05:15 PM	Displaying data	Dr Shaileja Yadav and Dr Anamika Sahu
05:15 – 06:00 PM	Hands-On MS Excel	Dr Ameya Vaze and Dr Sukarma Tanwar
Day 3: 8 Dec 2023		
Chairperson: Dr Anil Kumar Co-chairperson: Dr Adhiraj Mishra		
09:00 – 09:15 AM	Recap quiz	Dr Anamika Sahu
09:15 – 10:45 AM	Data interpretation	Dr Mudasser Chanda and Dr Ravinder Singh
10:45 – 11:10 AM	Surveillance monitoring	Dr Ameya Vaze and Dr Bhavesh
11:10 – 11:30 AM	Communicating surveillance information	Dr Shaileja Yadav
11:30 – 11:45 AM	Tea break	
11:45 – 01:30 PM	Case study	All facilitators
01:30 – 02:45 PM	Lunch Break	
02:45 – 03:45 PM	Orientation on Field Assignment	Dr Shaileja Yadav
03:45 – 04:00 PM	Post-test and feedback	
04:00 – 04:30 PM	Closing remarks	
04:30 – 04:45 PM	High tea	

ANNEXURE 2: PROCEEDINGS OF CONTACT SESSION 2 OF PILOT BATCH 1

Day 1 (09.01.2024)

Technical sessions on day 1 started after the registration and pre-test. The day was chaired by Dr Anil Kumar and Dr Amol Patil. The sequence of topics discussed on Day 1 is given below:

Dr Devang Jariwala and Dr Shaileja Yadav moderated the session – Outbreak Investigation: Recognizing an Outbreak. The session covered alert, and action threshold based on three years of data followed by factors that affect the decisions for investigation. Prioritizing when to investigate and when to ensure control measures are in place were discussed with real life scenarios. The session also included hands-on exercises and a One Health Highlight section describing the situations requiring a joint outbreak investigation. Dr Anil Kumar and Dr Amol Patil gave a detailed feedback post the session delving deeper into the practical challenges of identifying outbreaks on field level. This was followed by Hi-Tea.

Following tea break, Dr Sukarma Tanwar and Dr Bhavesh delivered a detailed presentation on the basics of developing a scientific presentation. They explained the concept of planning, preparing & delivering presentations, both in technical and community settings. The concepts of IMRaD and SOCO were introduced to the participants. The simplicity of using a PowerPoint presentation as a tool for presenting and other modalities were discussed. Best practices and common errors while preparing a PowerPoint presentation were also discussed. This was followed by a lunch break.

Post lunch break, Dr Ravinder Pal Singh and Dr Bhavesh conducted a session on Outbreak Investigation- Descriptive Phase. They introduced the 13 steps of outbreak investigation to the participants and discussed the first six steps in detail. The need for a multidisciplinary team led by an Epidemiologist who also works as the point contact/liaison for the whole team was emphasized. Confirmation of an outbreak and developing a case definition were discussed further on with examples. This was followed by a discussion regarding active case search and line listing, and describing the outbreak based on time, place and person distribution. The session also included many hands-on exercises giving the officers a chance to work on data sets and real-world scenarios.

Dr Anil Kumar and Dr Amol Patil delivered the concluding remarks by sharing anecdotes and stories highlighting various issues to consider while investigating an outbreak on ground.

Day 2 (10.01.2024)

Day 2 started with a recap of the topics discussed on Day 1 by Dr. Anamika Sahu. This recap was done by means of an interactive online Kahoot quiz. The questions were designed to highlight common doubts and encourage discussion on the same. This day was chaired by Dr Anil Kuamar and Dr Runa Hatti Gokhale.

The first technical session of Day 2 was delivered by Dr Mayank Dwivedi and Dr Sukanya Pondugala. Dr Mayank described in detail the discussions that are quintessential with the laboratory before, during and after an outbreak for better, timely and quality support from the laboratory. He gave details of the various requirements for sample collection, storage and transportation during outbreak investigations. Dr Sukanya talked in detail about the process of food sampling by FSSAI during outbreak investigations and the relevant institutional mechanism for the same. Following the session, the chairs Dr Anil Kumar and Dr Runa noted the interest generated by the discussion on food sampling and reiterated the importance of bringing together officers from various sectors to strengthen field response.

The next session was moderated by Dr Devang Jariwala and Dr Priyanka Dhir, on the topic – Outbreak Investigation: Analysis and Response. This involved steps 7 through 13 of outbreak investigation. The topic of

developing a hypothesis was discussed in detail. The importance of support from laboratory confirmation, supportive evidence from environmental epidemiology and multi-sectoral collaboration for an effective and comprehensive response was emphasised. This was followed by a lunch break.

Following lunch break, Dr Monil Singhai joined the workshop virtually to moderate the session on Biosafety and Biosecurity. She talked about the concepts of risk, hazard and risk management, and delved into the basics of Biosafety and Biosecurity. This was followed by a demonstration of personal Protective Equipment, moderated by Dr Mayank Dwivedi. This was followed by a tea break.

Following the break, four districts delivered their assignment presentations – Surat, Surat Municipal Corporation, Dahod and Narmada. This session was chaired by Dr Anil Kumar and Dr Harshad Prajapati and evaluated by Dr Sukarma and Dr Priyanka. Each presentation incorporated principles of One Health, wherein the officers presented a joint analysis of surveillance data, and was followed by an interactive question-and-answer session, wherein the presenting officers answered questions from the audience.

Day 3 (11.01.2024)

Same as the previous day, Day 3 started with a recap of the topics discussed on Day 2 by Dr. Bhavesh. This recap was also done using an interactive online Kahoot quiz. The questions were designed to highlight common doubts and encourage discussion on the topics about the analysis and response phase of an outbreak investigation, and the concepts of biosafety and biosecurity. The day was chaired by Dr Anil Kumar and Dr Raghavendra.

The technical sessions commenced with assignment presentations by five districts – Dang, Tapi, Navsari, Chhota Udepur and Valsad. The presentations were chaired by Dr Anil Kumar and Dr Raghavendra and evaluated by Dr Sukarma and Dr Priyanka. Same as previous day, each presentation incorporated principles of One Health, wherein the officers presented a joint analysis of surveillance data, and was followed by an interactive question-and-answer session. Dr Anil Kumar noted the potential of the SectorConnect FEP OH field assignments in bringing about a real, tangible change in the coordination of the human and animal health sectors. This was followed by a tea break.

Post tea break, the case study on an “Outbreak Investigation of Highly Pathogenic Avian Influenza A (H5N1) in District XY, State A, Country Y, January – February 2016” was discussed by Dr. Ameya Vaze, Dr Bhavesh and Dr Anamika Sahu. The main objectives of this study were to describe the steps of the outbreak investigation and applying One Health approach to the process. The participants were encouraged to participate in the debates and question-answer parts of the case study. They were guided as to how to identify and proceed with the steps of outbreak investigation and describe the outbreak by time place and person using rates, tables and graphs. The components of laboratory support and evidence from environmental epidemiology along with the generation of hypotheses from a real outbreak investigation in the form of a case study helped the participants understand the steps and the expectations from their assignments, and brainstorm on various collaboration and coordination opportunities with the counterpart sectors. This was followed by a lunch break.

Post lunch break, Dr. Shaileja Yadav took a brief session on Guidance to the Field Assignment 2 i.e., Outbreak Investigation. The expectations from participants and mentors were discussed. The modalities of interaction with the programme secretariat at NCDC were discussed and an overview on conducting an outbreak investigation was provided. All the mentors also participated in this exercise. She also helped the officers in troubleshooting issues in accessing the online content on Learning Management System (LMS).

The award for the best presentation were given to team Valsad, who presented a surveillance data analysis of Leptospirosis (animal and human health) in the Valsad district using a One Health approach. The session concluded with final remarks from Dr Amit Kanani, Dr Jayesh Katira and Dr Anil Kumar, who acknowledged and appreciated the efforts of the officers and organizers. They also wished the officers and mentors good luck fo

the next assignment. Participants filled the Post-test and Feedback form (Google form), bringing the second contact session to an end.

2nd Contact Session - Agenda

Dates: 9 – 11 January 2024

Venue: Fairfield by Marriott, Vadodara, Gujarat

Time period	Agenda	Facilitator/s
Day 1: 9 Jan 2024 Co-chairpersons: Dr Anil Kumar and Dr Amol Patil Observers: Dr Aditi Sharma		
09:00 – 09:30 AM	Registration and Pre-test	Programme secretariat
09:30 – 11:15 AM	Outbreak Investigation: Recognising an outbreak	Dr Devang Jariwala and Dr Shaileja Yadav
11:15 – 11:30 AM	Tea break	
11:30 – 12:30 AM	Oral presentation: (a) Plan, prepare and deliver; (b) Best practices MS PPT	Dr Sukarma Tanwar and Dr Bhavesh
12:30 – 01:00 PM	Group work: Presentation finalisation	Mentors with officers
01:00 – 02:00 PM	Lunch Break	
02:00 – 03:45 PM	Outbreak Investigation: Descriptive phase	Dr Mudassar Chanda and Dr Ravinder Singh
03:45 – 04:00 PM	High Tea	
04:00 – 04:45 PM	Outbreak Investigation: Descriptive phase (continued)	Co-chairpersons: Dr Anil Kumar and Dr Amol Patil Evaluator: SectorConnect team
Day 2: 10 Jan 2024 Co-chairpersons: Dr Anil Kumar and Dr Runa Gokhale Observers: Dr Amol Patil and Dr Aditi Sharma		
09:00 – 09:15 AM	Recap quiz	SectorConnect team

Time period	Agenda	Facilitator/s
09:15 – 11:00 AM	Laboratory linkages	Dr Sukanya Pondugala and Dr Mayank Dwivedi
11:00 – 11:15 AM	Tea break	
11:15 – 01:00 PM	OBI: Analysis and response	Dr Devang Jariwala and Dr Priyanka Kundra
01:00 – 02:00 PM	Lunch break	
02:00 – 03:00 PM	Biosafety and biosecurity	Dr Monil Singhai and Dr Mayank Dwivedi
03:00 – 03:30 PM	Demonstration: Personal Protective Equipment (PPE)	State team and Dr Mayank Dwivedi
03:30 – 03:45 PM	High Tea	
03:45 – 04:30 PM	Assignment presentations (n=4)	Co-chairpersons: Dr Anil Kumar and Dr Harshad Prajapati Evaluator: SectorConnect team
Day 3: 11 Jan 2024 Co-chairpersons: Dr Anil Kumar and Dr Raghavendra Observers: Dr Amol Patil and Dr Aditi Sharma		
09:00 – 09:15 AM	Recap quiz	SectorConnect team
09:15 – 10:00 PM	Assignment presentations (n=5)	Co-chairpersons: Dr Anil Kumar and Dr Raghavendra Evaluator: SectorConnect team
11:15 – 11:30 AM	Tea break	
11:30 – 01:00 PM	Case study	Dr Ameya Vaze, Dr Bhavesh, Dr Anamika Sahu
01:00 – 02:00 PM	Lunch Break	
02:00 – 02:45 PM	Orientation on Field Assignment 2	Dr Shaileja Yadav
02:45 – 03:15 PM	Post-test	Programme secretariat
03:15 – 03:45 PM	Feedback and conclusion	
03:45 – 04:00 PM	High Tea	

ANNEXURE 3: PROCEEDINGS OF CONTACT SESSION 3 OF PILOT BATCH 1

Day 1 (12.02.2024)

The technical session was initiated by revising the topic covered in CS1 and CS2 on the Kahoot. The sessions proceeded as follows:

Dr Prejit commenced the session with an overview of the joint risk analysis, explaining the fundamental principles governing risk assessment, and risk pathways associated with zoonotic diseases, and outlining the sequential steps involved in characterizing and understanding the potential risks involved. Participants were actively involved in creating risk pathway charts on chart paper during the exercise, specifically focusing on diverse zoonotic diseases. This is followed by a tea break.

Dr Priyanka covered WASH-related public health issues, emphasizing water safety's role in promoting One Health. She also discussed sanitation and wastewater concerns, addressing the burden of disease and environmental health in emergency situations.

Post lunch, Dr. Anamika provided a comprehensive overview of vaccination (veterinary), including diverse vaccination methods, evaluation criteria, and factors leading to vaccine failures. She highlighted the significance of maintaining the cold chain and outlined various vaccination schedules for animal diseases, discussing ongoing vaccination programs in India aimed at controlling zoonotic diseases. Subsequently, Dr. Amit Kanani contributed information on FMD serosurveillance, vaccine matching, and DIVA vaccine.

Dr Shaileja and Dr Ravinder provided a comprehensive overview of problem analysis, detailing the systematic approach to analyzing single or multisectoral public health issues. She highlighted the process of identifying and organizing root causes through cause-and-effect diagrams, emphasizing the development of improvement plans targeting key causes for effective problem analysis. A tea break follows this.

At the end of the first day, Dr. Ritu and Dr. Amol chaired the session and provided valuable feedback on the field assignments of district teams which was also evaluated by the Dr Priyanka and Dr Ravinder.

(13.02.2024)

Day 2 started by Dr. Anamika and Dr. Shaileja providing a recap of the day 1 topic through an engaging Kahoot session. Following the recap, technical sessions proceeded:

Dr Priyanka led the session on International Health Regulations (IHR), exploring its role, revised IHR, and different criteria (A, B, C) of diseases, along with detailing tools like JEE and SPAR. The primary goal emphasized was the identification, detection, and control of zoonotic pathogens.

Dr Anamika Sahu elaborated on Performance Veterinary Services (PVS), delineating its role in assessing strengths and weaknesses within the veterinary sector. She discussed the collaborative aspect of International Health Regulations-Performance Veterinary Services, addressing the aim of identifying the gaps in zoonotic diseases.

Dr Shaileja comprehensively addressed stakeholder analysis, defining stakeholders, emphasizing their importance in addressing one health issue, outlining the steps involved, and systematically identifying, mapping, and categorizing relevant stakeholders for effective management.

Following the short tea break, Ms. Sophia facilitated a session on the principles of risk communication, delving into the meanings of risk communication, threat, risk, and the role of media engagement.

Dr Ritu elaborated on the pivotal role of community engagement in addressing zoonosis and promoting One Health. She underscored its significance in effectively managing infodemics and highlighted the importance of stakeholder mapping for comprehensive involvement in these public health initiatives.

Following a lunch break, Dr. Anil and Dr. Amol chaired a session and provided valuable feedback to the six teams that presented their field assignments. This culminated in marking the conclusion of the activities on Day 2.

Day 3 (14.02.2024)

On the concluding day, Dr Arun led the session on Research Implementation, providing an overview and detailing the various steps involved. The discussion delved into the introduction of the research, encompassing aspects such as vaccine efficacy and vaccine effectiveness. A small tea break followed the session.

Dr Mudassar led a Geographical Information System (GIS) session, offering a fundamental introduction and guiding participants through hands-on exercises encompassing point and line mapping. The session also included practical aspects such as adding legends and arrows to enhance map comprehension.

After the lunch break, Dr. Devang focused on Public Health Emergency Management (PHEM) in the context of various emergency conditions. He elaborated on the specialized training provided by NCDC to address the intricacies of managing public health issues.

In the closing ceremony, the field assignment winner received the prize from the SectorConnect. Dr. Anil extended congratulations to all participants for successfully concluding the three-month training program, acknowledging Dr. Meera and the SectorConnect team for accomplishing the first pilot batch.

Dr Amit Kanani and Dr Harshad discussed how the training contributed to effective collaboration among diverse sectors and shared their experiences. They commended the SectorConnect team for delivering comprehensive insights on disease surveillance, joint outbreak investigation, and practical aspects of GIS.

Dr Jayesh Katira addressed the motivated participants by congratulating them for completing the training program. He thanked all the facilitators and the SectorConnect team for contributing to the training program.

3rd Contact Session - Agenda

Dates: 12 – 14 February 2024

Venue: Surat, Gujarat

Time period	Agenda	Facilitator/s
Day 1: 12 Feb 2024 (Monday) Co-chairpersons: Dr Anil Kumar and Dr Aruna Sharma		
09:00 – 09:30 AM	Registration	SectorConnect Team
09:30 – 10:00 AM	Recap of CS 1 and CS 2 (Kahoot Quiz)	SectorConnect Team
10:00 – 11:00 AM	Introduction to Joint Risk Assessment	Dr Aruna Sharma and Dr Prejit
11:00 – 11:15 AM	Tea break	
11:15 – 12:30 AM	Water, Sanitation and Hygiene (WASH) and One Health	Dr Simmi and Dr Priyanka
12:30 – 01:00 PM	Group work: Presentation finalization	Mentors with officers
01:00 – 02:00 PM	Lunch Break	
02:00 – 03:00 PM	Vaccination Surveys (Veterinary)	Dr Adhiraj Mishra and Dr Amit Kanani
03:00 – 03:45 PM	Problem Analysis	Dr Ravinder Pal Singh and Dr Shaileja Yadav
03:45 – 04:00 PM	High Tea	
04:00 – 04:45 PM	Assignment presentations (n=3)	Co-chairpersons: Dr Anil Kumar and Dr Aruna Sharma Evaluator: SectorConnect team
Day 2: 13 Feb 2024 (Tuesday) Co-chairpersons: Dr Anil Kumar and Dr Adhiraj Mishra		
09:00 – 09:15 AM	Recap quiz	SectorConnect team
1. 09:15 – 09:45 AM 2. 09:45 – 10:15 AM	International Health Regulations – Performance of Veterinary Services 1. IHR 2005 2. IHR-PVS and Animal Quarantine and Certification Services (AQCS)	1. Dr Meera Dhuria 2. Dr Adhiraj Mishra
10:15 – 11:15 AM	Stakeholder Engagement	Dr Sukarma and Dr Shaileja Yadav
11:15 – 11:30 AM	Tea break	
1. 11:30 – 11:50 AM 2. 11:50 – 12:10 PM 3. 12:10 – 12:30 PM	Risk Communication and Community Engagement (RCCE) 1. Principles of Risk Communication 2. Handling the Media 3. Community Engagement and Programmatic aspects of RCCE	1. Dr Ritu Singh 2. Dr Sophia 3. Dr Simmi
12:30 – 01:15 PM	Assignment presentations (n=3)	Co-chairpersons: Dr Anil Kumar and Dr Adhiraj Mishra Evaluator: SectorConnect team
01:15 – 02:15 PM	Lunch break	

Time period	Agenda	Facilitator/s
02:15 – 03:15 PM	Expert Talk and Discussion (NCDC) – Scientific Writing	Dr Anil Kumar
03:15 – 04:15 PM	Expert Talk - GIS (Part 1)	Dr Anil Kumar and Dr Mudassar Chanda
04:15 – 04:30 PM	High Tea	

04:30 – 05:15 PM	Assignment presentations (n=3)	Co-chairpersons: Dr Anil Kumar and Dr Adhiraj Mishra Evaluator: SectorConnect team
Day 3: 14 Feb 2024 (Wednesday) Co-chairpersons: Dr Anil Kumar and Dr Jayesh Katira		
09:00 – 09:15 AM	Recap quiz	SectorConnect team
09:15 – 12:15 AM	Hands-on GIS (part 2)	Dr Anil Kumar and Dr Mudassar Chanda
12:15 – 01:00 PM	Expert Talk - Implementation Research	Dr Arun Kumar Sharma
01:00 – 02:00 PM	Lunch Break	
02:00 – 02:30 PM	Expert Talk – Public Health Emergency Management (PHEM)	Dr Himanshu Chauhan
02:30 – 03:00 PM	Feedback from Mentors and Officers (Video recording)	SectorConnect team
03:00 – 03:30 PM	conclusion	SectorConnect team

ANNEXURE 4: LIST OF TRAINEE OFFICERS AND MENTORS OF PILOT BATCH 1

SN	District	Name of the officials	Designation
Trainee officers			
1	Chhota Udepur	Dr. Ganesh Chaudhari	District Surveillance Officer
2		Mr. Bharat Rathva	District Data Manager
3	Gandhinagar	Dr. Sunilkumar M Patel	Veterinary Officer
4	Dahod	Dr. Kalpesh Baria	District Surveillance Officer
5		Ms. Aesha Yogeshkumar Shah	District Epidemiologist
6		Dr. Chirag P. Kukadia	Microbiologist
7		Dr. B. M. Shah	Assistant Director of A.H.
8	Valsad	Dr. Manoj Patel	District Surveillance Officer
9		Dr. Rohit H. Lad	Data Manager
10		Dr. Hitesh Ahir	Microbiologist
11		Dr. N. Z. Padher	Assistant Director of A.H.
12	Navsari	Dr. Bhavesh S Patel	District Surveillance Officer
13		Dr. Jaydeep Sondani	District Epidemiologist
14		Dr. Jaysukh Mangukiya	Microbiologist
15		Dr. Jhanvi Chitariya	Veterinary Officer
16	Dang	Dr. Dilip Sharma	District Surveillance Officer
17		Dr. Ankita N Chaudhari	District Epidemiologist
18		Dr. Hetal Rathod	Microbiologist
19		Dr. Divyaben Chaudhari	Veterinary Officer
20	Tapi	Dr. Snehal Kumar B. Patel	District Surveillance Officer

SN	District	Name of the officials	Designation
21		Dr. Dipti K. Gamit	District Epidemiologist
22		Dr. Mehul R.Patel	Microbiologist
23		Dr. Ravi Gondaliya	Veterinary Officer
24	Surat	Dr. Kaushik R Mehta	District Surveillance Officer
25		Dr. Paresh B. Surati	District Epidemiologist
26		Dr. Alpa Patel	Microbiologist
27		Dr. Ashok V. Kumbhani	Assistant Director of A.H.
28	Surat MC	Dr. Bhaveshkumar N Patel	Medical Officer
29		Dr. Ravi Jariwala	Medical Officer
30		Dr. Manish Patel	Microbiologist
31		Dr. Sunil B. Khatri	Veterinary Officer
32	Narmada	Dr. R. S. Kashyap	District Surveillance Officer
33		Mr. Nayi Amitkumar	District Data Manager
34		Dr. Jigisha Bhoya	Microbiologist
35		Dr. Amit Patel	Veterinary Officer
36	APHO	Dr. Sunil Kumar Prajapati	Port Health Officer, Kandla
37		Dr. V. Kumanan	Dy. Airport Health Officer, Ahmedabad
Mentors			
1	Medical college, Vadodara	Dr. Raman Damor	Assistant Professor, Medical college, Vadodara
2	GMERS, Valsad	Dr. Priti Solanky	Assistant Professor, GMERS, Valsad
3	GMERS, Valsad	Dr. Vaibhav Gharat	Assistant Professor, GMERS, Valsad
4	PSM, SMIMER	Dr. Bipin Vasava	Associate Professor, PSM, SMIMER

SN	District	Name of the officials	Designation
5	GMC, Surat	Dr. Naresh Chauhan	Assistant Professor, GMC, Surat
6	Dept of Animal Husbandry, Ahmedabad	Dr. Amit Kanani	Deputy Director of Animal Husbandry, Ahmedabad, Govt. of Gujarat
7	Kamadhenu University, Navsari	Dr. Manish D. Patel	Associate Professor (Medicine), CVSc & AH, KU, Navsari
8	Kamadhenu University, Navsari	Dr. Rakesh Bhojani	Assistant Professor (Medicine), CVSc & AH, KU, Navsari
9	Kamdhenu University, Himmatnagar	Dr. A.I. Dadawala	Assistant Professor (Microbiology) PAH, Kamdhenu University, Himmatnagar
10	Kamadhenu University, Navsari	Dr. Jignesh Vala	Assistant Professor (Medicine), CVSc & AH, KU, Navsari
11	Geer Foundation, Gandhinagar	Dr. Aniket Patel	Veterinary Officer, Geer Foundation, Gandhinagar

ANNEXURE 5: PROCEEDINGS OF CONTACT SESSION 1 OF PILOT BATCH 2

Mentors Orientation Workshop (16.01.2024)

Registration and training material: The mentors registered and marked attendance for the workshop and received instructor copies of various training materials.

The Mentors Orientation Workshop started with Dr. Ameya Vaze engaging the mentors by playing a small interactive game based on Johari Window to encourage interaction among mentors from diverse sectors. Further led by opening the house for discussing One Health and the role of epidemiology. It was followed by a quick interactive quiz (via Kahoot) to refresh 'One Health' concepts.

Dr Bhavesh then led an interactive talk on SectorConnect mentorship. He started by outlining the SectorConnect FEPOH objectives and timeline. Mentors were briefed about the importance of mentorship in this training program.

Dr Anamika Sahu then outlined the learning objectives of Contact Sessions 1, 2, and 3. She highlighted how practical real life case scenarios and examples along with interactive training methodologies will be used to improve understanding for the adult learners.

Then, Dr Ameya Vaze elaborated on the field assignments focusing on data collection for disease surveillance and conducting a joint outbreak investigation. He shared how "learning by doing together" forms the core of this training program.

Dr Bhavesh, Dr Ameya and Dr Anamika then elaborated on mentors' roles and responsibilities during contact sessions and field assignments. Emphasis was put on responsibilities like ensuring timely submission of approved field assignment presentations, maintaining regular communication, monitoring mentees' progress, and providing crucial epidemiological support.

Dr Ravinder Singh invited the mentors for any doubts and clarifications and highlighted how their role will be crucial for the success of this program.

Dr Ashish thanked all the mentors and facilitators for their active participation in the workshop. He expressed gratitude to the state leadership for launching the pilot program.

PROCEEDINGS OF THE CONTACT SESSION

Day 1 (17.01.2024)

Inaugural Session

Day 1 started with the inaugural session which was graced by the following dignitaries –

1. Dr Sunil Gupta, Principal Consultant, NCDC
2. Dr Pranay Verma, Joint Director, IDSP, NCDC
3. Dr. Rabindra Prasad Singh, Director, ICAR- National institute of Foot and Mouth Disease
4. Dr. R.B. Singh, Director, SIHFW
5. Dr Jayesh Solanki, State Epidemiologist, IDSP, Gujarat
6. Dr Amit Kanani, Deputy Director, Animal Husbandry Department, Gujarat
7. Dr Harshad, State Surveillance Officer, Gujarat

Dr Ashish extended the formal welcome to all. This was followed by a brief green welcome ceremony, wherein the state officials presented saplings to the dignitaries as a token of gratitude.

Dr Harshad extended a gracious welcome to all, acknowledging and commending the inaugural SectorConnect training program in Gujarat. He highlighted the achievements and commitment of the government in this regard, which is reflected in the support NCDC and Department of Animal Husbandry and Dairying focussing on One Health approach.

Dr Jayesh Solanki expressed his happiness and gratitude to be a part of SectorConnect training programme after attending first pilot batch and welcomed the participants and mentors. He further discussed the role of various sectors including the human, animal wildlife and environment in disease prevention and control.

Dr Pranay highlighted the crucial role of Integrated Health Information Platform (IHIP) in promptly detecting and monitoring infectious diseases nationwide. He underscored the ability of IHIP in streamlining data processes, enabling effective sharing among diverse health stakeholders, ultimately enhancing public health response and management.

Dr Amit Kanani extended a gracious welcome to all, acknowledging and commending the inaugural SectorConnect training program batch 2 in Ahmedabad. He highlighted the achievements and commitment of the government in this regard, which is reflected in the support NCDC and Department of Animal Husbandry and Dairying focussing on One Health approach.

Dr R.B. Singh training program's role and extended congratulations for the batch 2 SectorConnect training. He highlighted how cross-sector collaboration will enhance disease surveillance and facilitate joint outbreak investigations, emphasizing the program's significance in fostering multidisciplinary approaches to public health challenges.

Dr. Rabinder Prasad Singh highlighted the rise of zoonotic diseases originating from the animal sector, emphasizing the impact on animal productivity, including diseases like FMD. He commended the collaborative initiatives of NCDC and DAHD, the SectorConnect Training Programme.

Dr Sunil Gupta focused on the need for developing One Health capacity through collaborative efforts. He urged everyone to break the silos, and work towards the common goal of ensuring the wellbeing of all through One Health approach.

Post the inaugural session, everyone gathered for a group photograph and high tea.

Icebreaker session

Following the tea break, Dr. Ameya Vaze initiated an interactive Icebreaker session on Avian Influenza surveillance, covering steps in disease surveillance across human and animal sectors, steps for information sharing, and the diverse stakeholders engaged during an outbreak. It saw huge interest and active participation from the mentors and trainees.

Technical Sessions

Dr Ravinder Singh provided an introductory overview of the SectorConnect training, its inception and the overall objectives of the training program. He elaborated on the lessons learnt from the 3x3 Frontline FETP training, and how SectorConnect was built on its successful model.

Dr Ashish and Dr Bhavesh initiated the technical sessions by revising the basics of epidemiology and going through each component of the definition of epidemiology. The application of epidemiology to the range of

animal and human health problems was discussed in detail. The concept of Count, Divide and Compare in epidemiology along with discussion about the epidemiological triad, epidemiology of communicable disease was carried out. Also commenced the session by centering the discussion on One Health, elucidating its definition, addressing key issues, and exploring the varied approaches integral to this interdisciplinary framework. This was followed by lunch.

Post lunch, session of the day, Dr Vikas Khokare and Dr Ameya Vaze took a session on Disease Surveillance. This included a discussion on the importance and objectives of disease surveillance, and steps of the surveillance cycle, reportable disease in human and animal sector followed by exercise based on completing a surveillance case report form marking the conclusion of first day activities.

Dr Pranay and Dr Ameya facilitated the session on data collection reflecting on the next step of disease surveillance cycle following case detection. The session started with identifying reportable diseases under Integrated Disease Surveillance Program (IDSP) and Animal Disease Surveillance Report (ADSR). The importance of Zero reporting was highlighted by the facilitators. Examples highlighting the importance of collecting geospatial data were also shared with the participants. Exercises to understand disease reporting practices and completing a case report form were conducted. This was followed by a quick tea break.

For the final session of the day, Dr Pranay and Dr Kamlesh detailed the utilities, updates, and feedback regarding the IHIP portal. In a very simple way, issues related to operating the portal, data entry, mapping of laboratory or a site in the portal, and monitoring indicators on the IHIP dashboard were also discussed.

Day 2 (18.01.2024)

The day 2 started with a recap of topics discussed on day 1 by Dr Bhavesh through a short quiz. The technical sessions proceeded as follows:

A session on data quality was then facilitated by Dr Bhavesh. The importance of maintaining quality of collected data and its impact on subsequent steps in the surveillance cycle was highlighted. Various issues of data quality and common errors were discussed. Strategies to promote and ensure good quality using monitoring indicators were presented to the participants.

Next, a session on case definitions and line lists was taken by Dr Ravinder and Dr Ameya. The importance of using a consistent case definition was highlighted after showcasing various examples of suspect, probable and confirmed case definitions used in human and animal disease surveillance systems. The importance of a line list in surveillance and the variables to be added to a line list were further discussed. Participants were also given hands-on exercises on case definitions and line list generation.

After a short tea break, Dr Akansha Mahajan, Deputy Inspector General for Central Zoo Authority virtually presented the wildlife disease surveillance. She highlighted various innovative approaches and newer developments being undertaken for wildlife disease surveillance in this regard.

Then a session on data summarisation was undertaken by Dr Ravinder and Dr Anamika Sahu. Discussion included various types of variables, measures of central location such as mean, median, mode and measures of spread like range with examples. Various measures of disease frequency like incidence, prevalence, attack rates and case fatality rates were explained to the officers with their active participation. Participants were also given exercises to identify the type of variables and were given hands-on training to calculate the measures of frequency and central location.

Dr Ravinder and Dr Bhavesh took a session on displaying data. Tables, graphs, as well as the use of maps to display the data and their appropriate usage, were discussed at length.

Dr Bhavesh facilitated a hands-on session on using MS Excel to manage tabular data and prepare appropriate graphs and charts using it.

Finally, Dr Ravinder Singh and Dr Bhavesh facilitated a session on data interpretation. Highlighting the importance of using thresholds, possible reasons for observed rise in case reporting were discussed. Finally, a discussion on the importance of following the one health approach was emphasised during all steps of the surveillance cycle. A template tool based on MS Excel was shared with the participants for use to quickly calculate various rates, proportions and thresholds.

Day 3 (19.01.2024)

To start the final day, Dr Anamika conducted a quick recap of day 2 with the participants through a short quiz. Technical sessions were taken as follows:

The session on communication of surveillance information was taken by Dr Anamika Sahu. The various kinds of target audience and the importance of periodic reports were discussed. Discussion followed on the points of data sharing and coordination between the partner sectors.

Dr Bhavesh led the next session on monitoring of surveillance systems. IDSP-IHIP monitoring indicators were demonstrated and discussion on the use of specific indicators i.e. timeliness and completeness of the surveillance system was led. Exercise to calculate said indicators was also done.

Following the tea break a long interactive discussion on a case study on Avian Influenza Surveillance was led by Dr Bhavesh and Dr Anamika. All the facilitators and trainees participated in this exercise. The main objectives of this case study were to describe the steps of the surveillance cycle, to describe the purpose and use of the local surveillance data and to emphasize the importance of one health approach. The participants were guided to complete a surveillance case report form and to calculate the incidence and case fatality rates. They were also guided as to how to identify and correct data errors and to summarise as well as interpret surveillance data by time, place and person distribution using rates, tables and graphs.

After breaking for lunch, Dr Bhavesh and Dr Anamika Sahu oriented the mentors and the trainees to the field assignments and the expected outcomes before the next contact session. The participants will present their work (a PowerPoint presentation) as teams during the second contact session. The field assignments will be mainly to describe the disease surveillance in their district, analyse the disease surveillance data, assess data quality and suggest recommendations to improve the surveillance/data quality.

The participants then exchanged their contact information and formed district-wise 'whatsapp' groups for easy communication for carrying out their field assignment. They also completed a post-test and provided their feedback through a google form.

After the technical sessions, Dr Jayesh Katira addressed the gathering and motivated the participants to accomplish the goals of this training program. He thanked all the facilitators and observers for contributing to the training program.

In the end, Dr Ashish, on behalf of the entire SectorConnect FEP OH team thanked all the participants, mentors, and expert stakeholders and expected that all the participants will learn basic skills from this contact session on epidemiology and apply these skills at the district level data collection, analysis, interpretation as well as the use of excel in the surveillance.

Mentors Orientation Workshop - Agenda

Date: 16 January 2024

Venue: Board room, Narayani Heights Hotel, Gandhinagar, Gujarat

Time	Agenda	Facilitator
01:00 – 02:00 PM	Lunch	
02:00 – 02:30 PM	Registration and introduction	Dr Ashish
02:30 – 02:45 PM	Group Discussion: One Health Epidemiology	Dr Ameya
02:45 – 03:00 PM	Introduction to SectorConnect FEP-OH and mentorship	Dr Bhavesh
03:00 – 03:15 PM	Orientation to modules of SectorConnect FEP-OH	Dr Anamika
03:15 – 03:45 PM	Brief on Field Assignments	Dr Ameya
03:45 – 04:00 PM	Roles and responsibilities of FEP-OH mentors	Dr Bhavesh
04:00 – 04:15 PM	Feedback and discussion	Dr Ravinder
04:15 – 04:30 PM	High tea	

1st Contact Session - Agenda

Dates: 17 – 19 January 2024

Venue: Gandhinagar, Ahmedabad, Gujarat

Day 1: 17 January 2024		
09:00 – 09:30 AM	Registration and Pre-test	Programme secretariat
09:30 – 10:30 AM	Inauguration	
10:30 – 10:45 AM	Group photograph and high tea	
10:45 – 11:30 AM	Ice breaker session	Dr Amit Kanani and Dr Ameya Vaze
11:30 – 12:00 PM	Overview of SectorConnect and One Health	Dr Sunil Gupta and Dr Ameya Vaze
12:00 – 01:00 PM	Introduction to Epidemiology	Dr Ashish and Dr Bhavesh
01:00 – 02:00 PM	Lunch Break	
02:00 – 03:00 PM	Disease surveillance	Dr Vikas Khokare and Dr Ameya Vaze
03:00 – 04:00 PM	Data collection	Dr Pranay Verma and Dr Ameya Vaze
04:00 – 04:15 PM	Tea Break	
04:15 – 05:00 PM	IDSP-IHIP	Dr Pranay Verma and Dr Kamlesh
Day 2: 18 January 2024		
09:00 – 09:15 AM	Recap quiz	Dr Bhavesh
09:15 – 10:00 AM	Data quality	Dr Ashish and Dr Bhavesh
10:00 – 11:00 AM	Case definition and line list	Dr Ravinder Singh and Dr Ameya
11:00 – 11:15 AM	Tea break	
11:15 – 12:45 AM	Data summarisation	Dr Rajesh Yadav and Dr Anamika
12:45 – 01:45 PM	Lunch break	
01:45 – 02:45 PM	Displaying data	Dr Ashish and Dr Bhavesh
02:45 – 03:30 PM	Hands-On MS Excel	Dr Bhavesh
03:30 – 03:45 PM	Tea Break	
03:45 – 04:45 PM	Data interpretation	Dr Bhavesh and Dr Ravinder Singh
Day 3: 19 January 2024		
09:00 – 09:15 AM	Recap quiz	Dr Anamika
09:15 – 10:00 AM	Communicating surveillance information	Dr Ashish and Dr Anamika
10:00 – 10:45 PM	Surveillance monitoring	Dr Ashish and Dr Bhavesh

10:45 – 11:45 AM	Case study [part I]	All facilitators
11:45 – 12:00 PM	Tea break	
12:00 – 01:30 PM	Case study [part II]	All facilitators
01:30 – 02:30 PM	Lunch Break	
02:30 – 02:45 PM	Orientation on Field Assignment	Dr Anamika and Dr Bhavesh
02:45 – 03:45 PM	Brainstorming for Field Assignment	All mentors and mentees
03:45 – 04:15 PM	Post-test	Programme secretariat
04:15 – 04:30 PM	Conclusion and vote of thanks	Dr Ashish and Dr Jayesh Katira
04:30 – 04:45 PM	High tea	

ANNEXURE 6: PROCEEDINGS OF CONTACT SESSION 2 OF PILOT BATCH 2

Day 1 (15.02.2024)

Technical sessions on day 1 started after the registration and pre-test. The sequence of topics discussed on Day 1 is given below:

Dr Devang Jariwala and Dr Jess moderated the session – Outbreak Investigation: Recognizing an Outbreak. The session covered alert, and action threshold based on three years of data followed by factors that affect the decisions for investigation. Prioritizing when to investigate and when to ensure control measures are in place were discussed with real life scenarios. The session also included hands-on exercises and a One Health Highlight section describing the situations requiring a joint outbreak investigation. This was followed by Hi-Tea.

Following the tea break, Dr Bhavesh and Dr Ameya Vaze delivered a detailed presentation on the basics of developing a scientific presentation. They explained the concept of planning, preparing & delivering presentations, both in technical and community settings. The concepts of IMRaD and SOCO were introduced to the participants. The simplicity of using a PowerPoint presentation as a tool for presenting and other modalities were discussed. Best practices and common errors while preparing a PowerPoint presentation were also discussed. This was followed by a lunch break.

Post lunch break, Dr Ameya, and Dr Bhavesh conducted a session on Outbreak Investigation- Descriptive Phase. They introduced the 13 steps of outbreak investigation to the participants and discussed the first six steps in detail. The need for a multidisciplinary team led by an Epidemiologist who also works as the point contact/liaison for the whole team was emphasized. Confirmation of an outbreak and developing a case definition were discussed further on with examples. This was followed by a discussion regarding active case search and line listing, and describing the outbreak based on time, place, and person distribution. The session also included many hands-on exercises giving the officers a chance to work on data sets and real-world scenarios.

Day 2 (16.02.2024)

Day 2 started with a recap of the topics discussed on Day 1 by Dr. Bhavesh and Dr Ameya. This recap was done by means of an interactive online Kahoot quiz. The questions were designed to highlight common doubts and encourage discussion on the same.

The first technical session of Day 2 was delivered by Dr Indranil and Dr Sukanya Pondugala. Dr Indranil described in detail the discussions that are quintessential with the laboratory before, during, and after an outbreak for better, timely, and quality support from the laboratory. He gave details of the various requirements for sample collection, storage, and transportation during outbreak investigations. Dr Sukanya talked in detail about the process of food sampling by FSSAI during outbreak investigations and the relevant institutional mechanism for the same.

The next session was facilitated by Dr Ashish Kumar and Dr Devang Jariwala on the topic – Outbreak Investigation: Analysis and Response. This involved steps 7 through 13 of outbreak investigation. The topic of developing a hypothesis was discussed in detail. The importance of support from laboratory confirmation, supportive evidence from environmental epidemiology and multi-sectoral collaboration for an effective and comprehensive response was emphasized.

Ms. Sophia facilitated a session on the principles of risk communication, delving into the meanings of risk communication, threat, risk, and the role of media engagement.

Dr Tushar elaborated on the pivotal role of community engagement in addressing zoonosis and promoting One Health. He underscored its significance in effectively managing infodemics and highlighted the importance of stakeholder mapping for comprehensive involvement in these public health initiatives. This was followed by a lunch break.

Following the lunch break, two districts delivered their assignment presentations – Panchmahal and Bhavnagar MC and APHO. This session was chaired by Dr Tushar and Dr Nagappa and evaluated by Dr Sukarma and Dr Ashish. Each presentation incorporated principles of One Health, wherein the officers presented a joint analysis of surveillance data and was followed by an interactive question-and-answer session, wherein the presenting officers answered questions from the audience.

Dr Indranil facilitated the session on Biosafety and Biosecurity. He talked about the concepts of risk, hazard, and risk management, and delved into the basics of Biosafety and Biosecurity. Dr Nagappa discussed field biosecurity at the farm level. This was followed by a tea break.

Day 3 (17.02.2024)

Same as the previous day, Day 3 started with a recap of the topics discussed on Day 2 by Dr. Bhavesh and Dr Ameya. This recap was also done using an interactive online Kahoot quiz. The questions were designed to highlight common doubts and encourage discussion on the topics about the analysis and response phase of an outbreak investigation, and the concepts of biosafety and biosecurity.

The technical sessions commenced with assignment presentations by five districts –Amreli, Bharuch, Bhavnagar, Morbi, and Vadodara. The presentations were chaired by Dr Nagappa and Dr Harshad and evaluated by Dr Sukarma and Dr Ashish. Same as previous day, each presentation incorporated principles of One Health, wherein the officers presented a joint analysis of surveillance data and was followed by an interactive question-and-answer session. This was followed by a tea break.

Post tea break, the case study on an "Outbreak Investigation of Highly Pathogenic Avian Influenza A (H5N1) in District XY, State A, Country Y, January – February 2016" was discussed by Dr. Ameya Vaze, Dr Bhavesh, Dr Monark, and Dr Nagappa. The main objectives of this study were to describe the steps of the outbreak investigation and apply One Health approach to the process. The participants were encouraged to participate in the debates and question-answer parts of the case study. They were guided as to how to identify and proceed with the steps of outbreak investigation and describe the outbreak by time place and person using rates, tables and graphs. The components of laboratory support and evidence from environmental epidemiology along with the generation of hypotheses from a real outbreak investigation in the form of a case study helped the participants understand the steps and the expectations from their assignments, and brainstorm on various collaboration and coordination opportunities with the counterpart sectors. This was followed by a lunch break.

Post lunch break, Dr. Ameya took a brief session on Guidance to the Field Assignment 2 i.e., Outbreak Investigation. The expectations from participants and mentors were discussed. The modalities of interaction with the programme secretariat at NCDC were discussed and an overview on conducting an outbreak investigation was provided. All the mentors also participated in this exercise.

The award for the best presentation were given to team Vadodara Municipal Corporation, who presented a surveillance system evaluation and data analysis of typhoid cases. The session concluded with final remarks from Dr Harshad, who acknowledged and appreciated the efforts of the officers and organizers. They also wished the officers and mentors good luck for the next assignment. Participants filled the Post-test and Feedback form (Google form), bringing the second contact session to an end.

2nd Contact Session - Agenda

Dates: 15 – 17 February 2024

Venue: Hotel Narayani Heights, Gandhinagar, Ahmedabad

Time period	Agenda	Facilitator/s
Day 1: 15 Feb 2024		
09:00 – 09:30 AM	Registration and Pre-test	Programme secretariat
09:30 – 11:15 AM	Outbreak Investigation: [A] Recognising an outbreak	Dr Devang Jariwala and Dr Jess Vergis
11:15 – 11:30 AM	Tea break	
11:30 – 01:00 AM	Oral presentation: (a) Plan, prepare and deliver; (b) Best practices MS PPT	Dr Ameya and Dr Bhavesh
01:00 – 01:00 PM	Group work: Presentation finalisation	Mentors with officers
01:00 – 02:00 PM	Lunch Break	
02:00 – 02:30 PM	Group work: Presentation finalisation	Mentors with officers
02:30 – 03:45 PM	Outbreak Investigation: [B] Descriptive phase	Dr Sukarma Tanwar, Dr Ameya Vaze and Dr. Bhavesh
03:45 – 04:00 PM	High Tea	
04:00 – 05:00 PM	Outbreak Investigation: [B] Descriptive phase	Dr Sukarma Tanwar, Dr Ameya Vaze and Dr. Bhavesh
05:00 – 05:30 PM	Assignment presentations (n=2)	Evaluator: SectorConnect team
Day 2: 16 Feb 2024		
09:00 – 09:15 AM	Recap quiz	Dr Bhavesh
09:30 – 11:00 AM	Laboratory linkages	Dr Indranil Roy and Dr Sukanya Pondugala (FSSAI)
11:00 – 11:15 AM	Tea break	
11:15 – 01:00 PM	a. Principles of risk communication , Media engagement b. Community engagement and Participatory epidemiology	a. Ms Sophia b. Dr Tushar Nale
01:00 – 01:45 PM	Outbreak Investigation: [C] Analysis and response	Dr Devang Jariwala, Dr Ashish Kumar
01:45 – 02:30 PM	Lunch break	
02:30 – 03:30 PM	Outbreak Investigation: [C] Analysis and response	Dr Devang Jariwala, Dr Ashish Kumar
03:30 – 04:30 PM	Assignment presentations (n=3)	Evaluator: SectorConnect team
04:30 – 04:45 PM	High Tea	
04:45 – 05:30 PM	Biosafety and biosecurity	Dr Indranil Roy and Dr. Nagappa

Time period	Agenda	Facilitator/s
Day 3: 17 Feb 2024		
09:00 – 09:15 AM	Recap quiz	Dr Ameya Vaze

09:15 – 10:00 PM	Assignment presentations (n=3)	Evaluator: SectorConnect team
10:00 – 11:15 AM	Case study [part I]	Dr Ameya Vaze and Dr Bhavesh (with all facilitators)
11:15 – 11:30 AM	Tea break	
11:30 – 01:30 PM	Case study [part II]	Dr Ameya Vaze and Dr Bhavesh (with all facilitators)
01:30 – 02:30 PM	Lunch Break	
02:30 – 03:00 PM	Orientation on Field Assignment 2	Dr Bhavesh
03:00 – 03:15 PM	Brainstorming and planning for FieldAssignment 2	All mentors and mentees
03:15 – 03:45 PM	Post-test and Feedback	Programme secretariat
03:45 – 03:50 PM	Conclusion	
03:50 – 04:00 PM	High Tea	

ANNEXURE 7: LIST OF TRAINEE OFFICERS AND MENTORS OF PILOT BATCH 2

SN	District	Name of the officials	Designation
Trainee Officers			
1	Panchmahal	Dr. B.K. Patel	District Surveillance Officer
2		Dr. Trusha N Makwana	District Epidemiologist
3		Dr. Neela Katara	Microbiologist
4		Dr. Ekagrata Rami	Veterinary Officer
5	Vadodara	Dr. Rahul Singh	District Surveillance Officer
6		Dr. Radhika Brahmbhatt	District Epidemiologist
7		Dr. Himanshu Khatri	Microbiologist, SSG Hospital Vadodara
8		Dr. Narendra Parmar	Asst. Director of Animal Husbandry
9	Vadodara Municipal Corporation	Dr. Smita Vasava	District Surveillance Officer or DyHO
10		Dr. Piyush Patel	District Epidemiologist
11		Dr. Nisarg Trivedi	Microbiologist, GMERS Gotri Vadodara
12		Dr. Vijay Panchal	Veterinary Officer
13	Bharuch	Dr. Nilesh Patel	District Surveillance Officer
14		Dr. Komal Joshi	District Epidemiologist
15		Dr. Nitesh Patel	Microbiologist
16		Dr. Dipti Raval	Asst. Director of Animal Husbandry
17	Amreli	Dr. A.K. Singh	District Surveillance Officer
18		Dr. R. K. Sinha	Block Health Officer
19		Dr. Nirali N. Radadiya	Microbiologist
20		Dr. Nilpesh Savaliya	Asst. Director of Animal Husbandry
21	Morbi	Dr. D V Bavarva	District Surveillance Officer
22		Dr. Nisha Topiya	District Epidemiologist
23		Dr. Niraj Kumar Biswas	Microbiologist
24		Dr. M.C Ghetiya	Asst. Director of Animal Husbandry
25	Bhavnagar	Dr. Chandrakant T Kanzariya	District Surveillance Officer
26		Dr. Manisha Parmar (I/C)	District Epidemiologist
27		Dr. Pooja Dholakiya	Microbiologist
28		Dr. Bhavesh Solanki	Veterinary Officer
29	BMC	Dr. Vijay Kapadiya	District Surveillance Officer
30		Dr. Harsh Patel	District Epidemiologist
31		Dr. Nilesh Patel	Microbiologist

32		Dr. Jignesh Patel	Veterinary Officer
33	APHO	Dr. Shravan Kumar	Medical Officer
34		Dr. Siddharth Desai	Medical Officer
35	VMC	Mr. Jitendra K Gohil	Food Safety Officer

Mentors			
1	GMERS Gotri Vadodara	Dr. Monark Vyas	Assistant professor, GMERS Gotri Vadodara
2	SSG Hospital Vadodara	Dr. Rahul Parmar	Assistant professor, SSG Hospital Vadodara
3	SSG Hospital Vadodara	Dr. Niyati Parmar	Tutor, SSG Hospital Vadodara
4	Sir T Hospital Bhavnagar	Dr. Bansi Trivedi	Assistant professor, Sir T Hospital Bhavnagar
5	GMERS Panchamahar	Dr. Bhavesh Prajapati	Assistant professor, GMERS Panchamahar
6	Kamdhenu University	Dr. Bharat Bhandari	Associate Professor, Kamdhenu University
7	Kamdhenu University	Dr. Paresh Makwana	Assistant Professor, Kamdhenu University