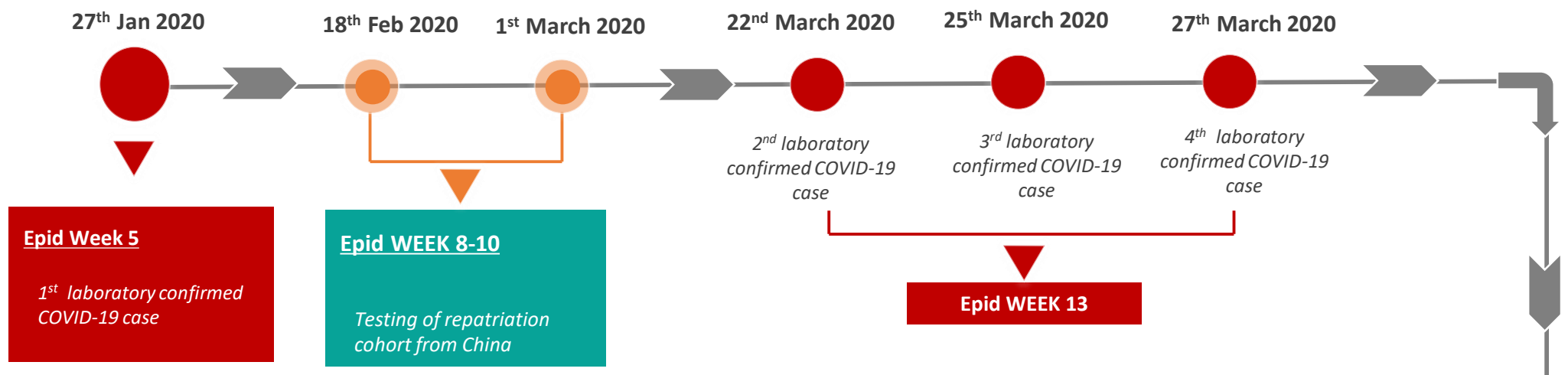


# COVID-19 response: laboratory information management system including dissemination of information

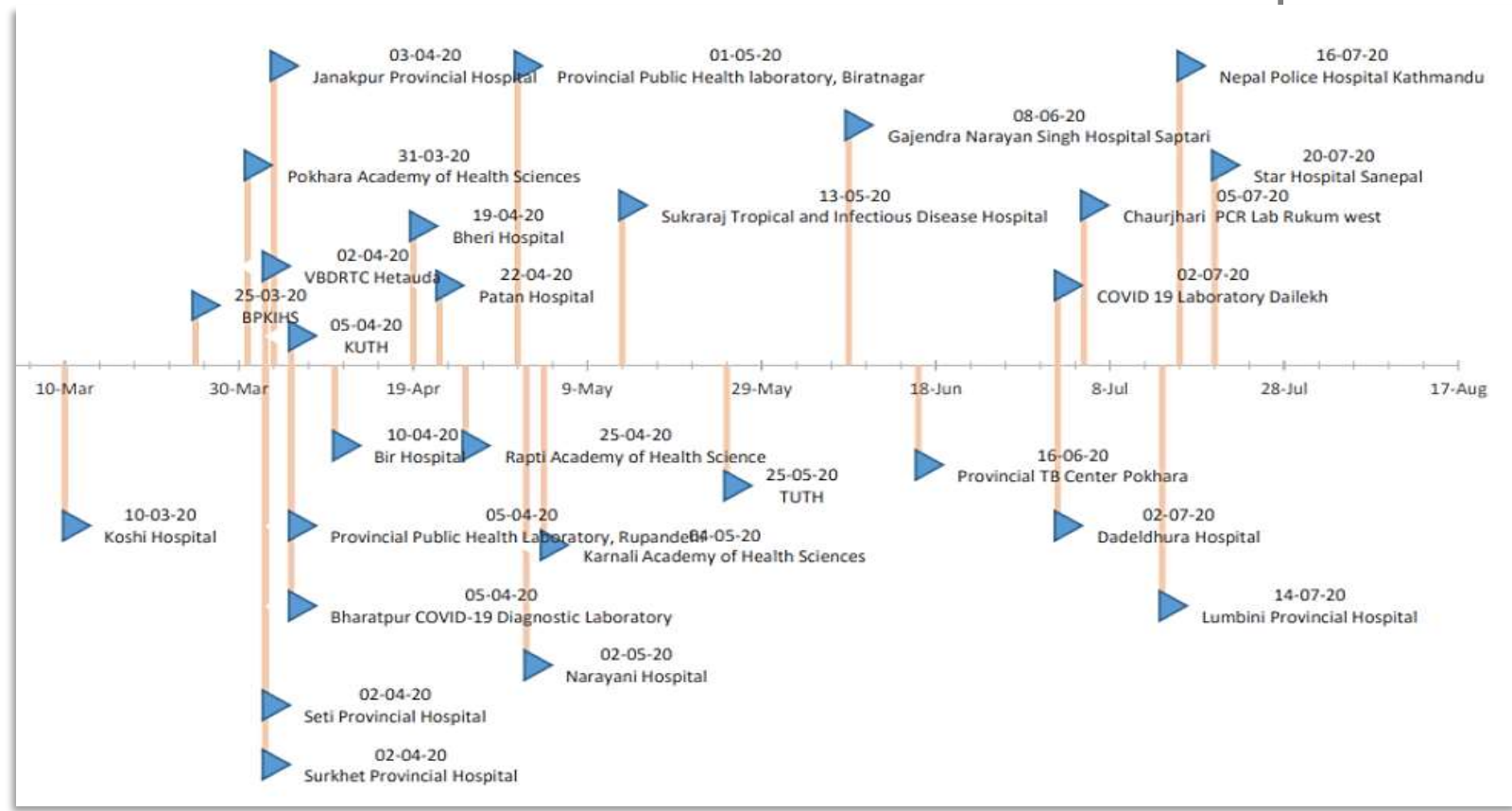
**Dr Runa Jha**  
**Director, NPHL**

**30 June 2020**



# Timeline for NPHL

## COVID-19 Response



# Laboratory Information System-NPHL



NPHL has been currently using **DOLPHIN Software**.

Developed **MIS reporting system** in collaboration with Third party software vendor

-First phase/stage

\*act as only data repository system from all designated COVID-19 laboratory network across the country

-Working on collating data (ongoing)

Objective of MIS system:

-to have a data repository system within the COVID-19 testing laboratory network across the country,

# How NPHL-Dolphin system functions?



## Laboratory Sample Collection Form for Suspected COVID-19 Case

**Sample Collection Site**

Province	Please tick the appropriate option and specify the name	
District	1. Quarantine <input type="checkbox"/>	
Municipality	2. Home quarantine <input type="checkbox"/>	
Ward	3. Health institution <input type="checkbox"/>	
Tole	4. Other institution <input type="checkbox"/>	
Contact Person for Reporting: (for all collected sample)	Name:	5. Community surveillance <input type="checkbox"/>
	Ph. No. / Email:	6. Others (Specify) <input type="checkbox"/>

**Patient's Detail:**

First Name:	Mid. Name:	Last Name:
Age: Year/month	Sex: Male <input type="checkbox"/> Female <input type="checkbox"/> Other <input type="checkbox"/>	Occupation:
Current address	District:	Municipality:
Contact No.	Ward No:	Tole:
Email, if necessary:		
If other than Nepal	Country:	Passport No.
Email:		

Was RT-PCR tested before?	1. Yes <input type="checkbox"/>	2. No <input type="checkbox"/>	If tested, mention date of latest test
Result of the latest test	Positive <input type="checkbox"/>	Negative <input type="checkbox"/>	Don't know <input type="checkbox"/>

Type of sample collected: (Please tick  the type)

Nasopharyngeal  / Oropharyngeal  / BAL  / Sputum  / Endotracheal Aspirate

If other, please specify: .....

**Type of Case (Travel, Contact and Symptoms Details)** (Please tick  in the box)

Symptomatic patient with Pneumonia <input type="checkbox"/>	Most recent travel history in the last 14 days Country: _____ If within Nepal: District: _____
ARDS <input type="checkbox"/> / Infection-like illness <input type="checkbox"/>	
If other, specify: .....	
Symptomatic patient with comorbidity Diabetes <input type="checkbox"/> , HTN <input type="checkbox"/> , Hemodialysis <input type="checkbox"/>	Screening: Pregnant / in labour: <input type="checkbox"/> > 65 Year <input type="checkbox"/>
Immunocompromised <input type="checkbox"/> If other, specify: .....	Health care worker <input type="checkbox"/> If other, specify: .....
Death case <input type="checkbox"/>	Clinical Suspicious (not admitted/ isolated) <input type="checkbox"/>
Health care worker in contact with positive case <input type="checkbox"/>	Contact tracing: <input type="checkbox"/>
Emergency surgical intervention <input type="checkbox"/>	Repeat swab for positive case: <input type="checkbox"/>
ICU case <input type="checkbox"/>	If other, Specify: .....

**Note: Please fill complete information in the form before sample collection. Keep it separate and transport separately from the sample.**

Attending physician/Health worker  
Signature: \_\_\_\_\_  
Name: \_\_\_\_\_  
Phone: \_\_\_\_\_

For further information please visit [www.nphl.gov.np](http://www.nphl.gov.np) Contact Person: Mr. Rajesh Kumar Gupta, (9851239888)

Home > Bulk Patient

General Bulk Patient

Choose File No file chosen Import! TEMPLATE

Site: Select a site Tests: Select Item Name or Item code Self Discount %: 100 Site/Batch Id: 5000 - 5000

District: Ref By: Ref. By Ref Hoipita: Ref Hospital Contact: contact

Pat. Type	Pat. Id	Form No.	First Name	Middle Name	Last Name	Mobile no.	Gender	Age/Age Type	Remarks
He	0							Years	+ Add
He	0	1234	RAM		KC	9811111111	M	21 Years	Save

Mandatory Field

## Home > Result Verification

Patient ID or Name Search! Not Verified Day: 6 Date Range: 2077-04-09 - 2077-04-15 BS Search Verify

Endocrinology  BioChemistry  JE MSL  Haematology  Histocytology  Immunology  
 Virology  Coagulation  Microbiology  Parasitology  HIV Reference Lab  Hemoglobinopathy  
 CD4 (Virology)  HBV/HCB Viral Load  Biochemistry Urine  National Influenza Centre  COVID-19 LAB

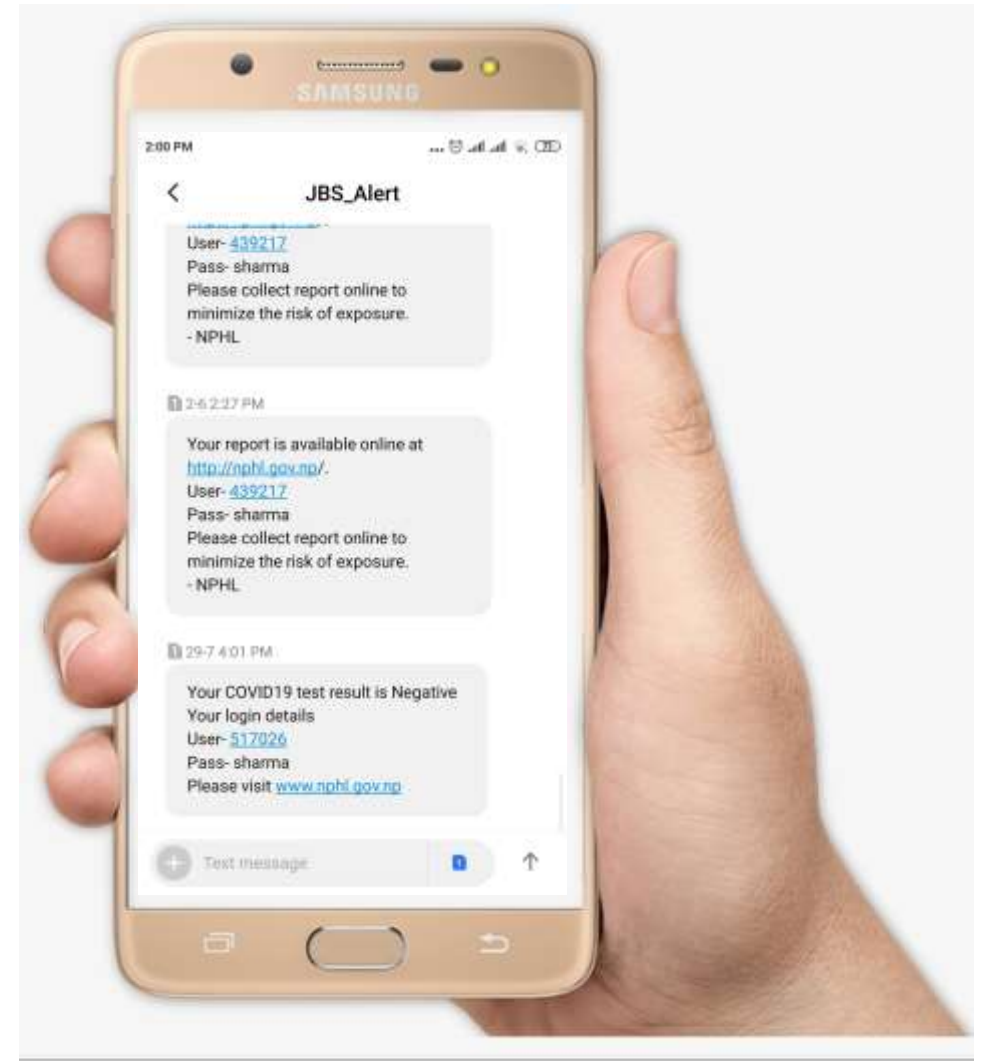
Show 25 entries

Pat. ID	Patient Name	A/G	Bill No.	Result	Action
518602	Januka Bidari	1Y/F	A7778-0009011	NEGATIVE	View Edit

Showing 1 to 1 of 1 entries

# Report Dispatch

- Dispatched through SMS
- Hardcopies if the patient comes to take report physically at NPHL



## Report dispatching system of Covid-19 PCR Centers

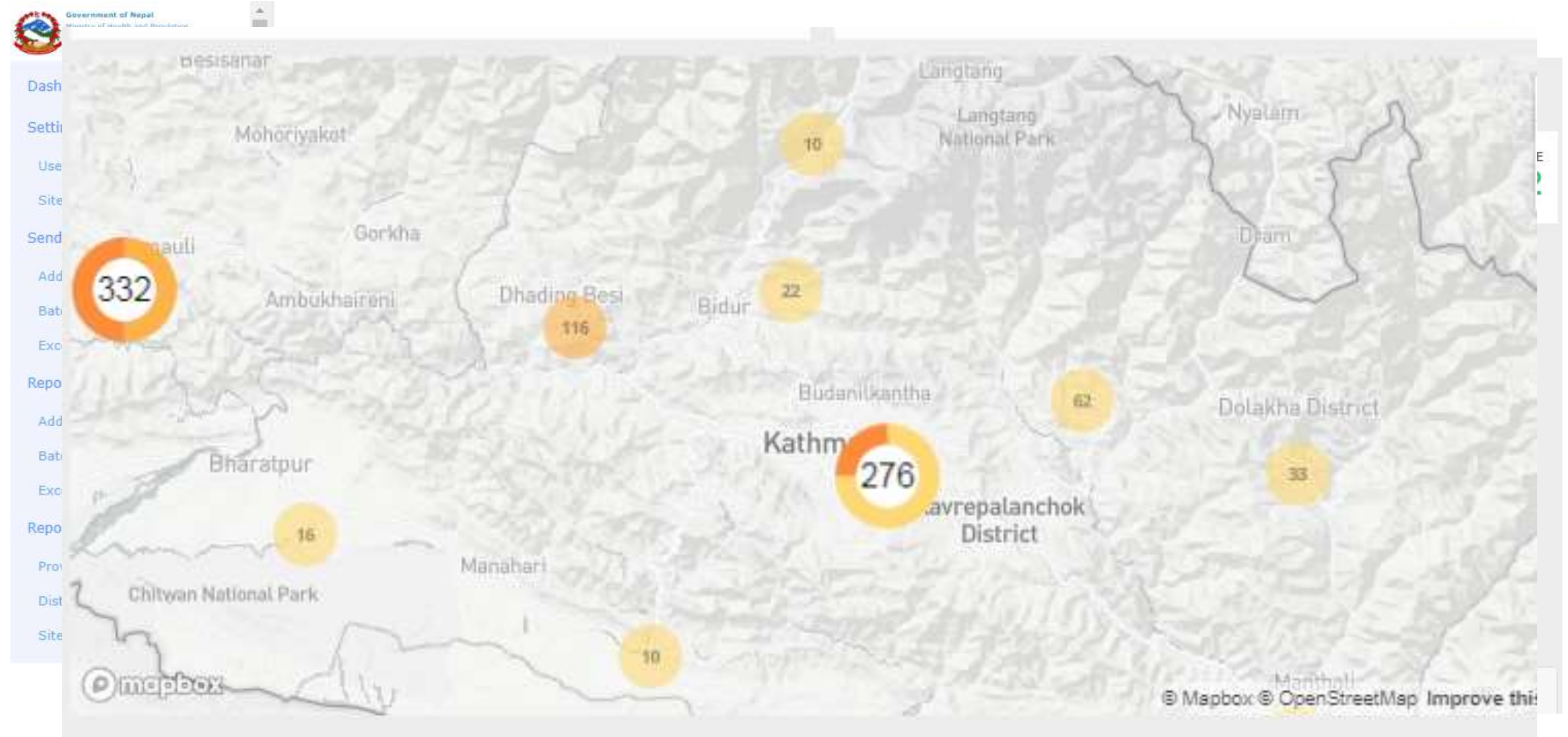
Province	S.N	Hospital Name/Center where COVID testing is done	Report dispatching system	Remarks
Province 1	1	BP Koirala Institute of Health Science, Dharan	Excel sheets are sent to local levels (printed report only on demand)	
	2	Koshi Hospital	Scanned reports (pdf file) are sent to local levels	
	3	Provincial Public Health Laboratory, Biratnagar	Excel sheets are sent to local levels (printed report only on demand)	
Province 2	4	Provincial Hospital Janakpur/dham	Excel sheets are sent to local levels (printed report only on demand)	
	5	Narayani Hospital, Birgunj	Excel sheets are sent to local levels (printed report only on demand)	
	6	Sagarmatha Zonal Hospital	Excel sheets are sent to local levels (printed report only on demand)	
Province 3	7	National Public Health Laboratory (NPHL)	SMS, Printed reports and excel sheets are sent MOSD	
	8	Sukraraj Tropical and Infectious Disease Hospital (STIDH)	SMS & Printed reports	
	9	Dhulikhel Hospital	Excel sheets are sent to local levels (printed report only on demand)	
	10	Bharatpur COVID-19 Diagnostic Lab, Chitwan	Excel sheets are sent to local levels (printed report only on demand)	
	11	Bir Hospital	Printed reports	
	12	Patan Academy of Health Sciences (PAHS)	Printed reports	
	13	VBDRTC, Hetauda	Excel sheets are sent to local levels (printed report only on demand)	
Gandaki	14	Tribhuvan University Teaching Hospital (TUTH)	Printed reports	
	15	Pokhara Academy of Health Science (WR Hospital)	Excel sheets are sent to local levels (printed report only on demand)	
Province 5	16	PPHL, Pokhara	SMS (ID&PASSWORD), Excel sheets are sent to local levels	
	17	Provincial Public Health Laboratory, Bhairahawa,	SMS (ID&PASSWORD), Excel sheets are sent to local levels	
	18	Lumbini Hospital	Excel sheets are sent to local levels (printed report only on demand)	
	19	Bheri Hospital, Nepalgunj	Excel sheets are sent to local levels (printed report only on demand)	
	20	Rapti Academy of Health Sciences	Excel sheets are sent to local levels (printed report only on demand)	
Karnali	21	Chaurjahari PCR laboratory, Rukum (west)	Excel sheets are sent to local levels (printed report only on demand)	
	22	Province Hospital Surkhet	Excel sheets are sent to local levels (printed report only on demand)	
	23	Karnali Academy of Health Sciences (KAHS)	Excel sheets are sent to local levels (printed report only on demand)	
Sudurpashchim	24	COVID-19 Testing Laboratory, Dailekh	Excel sheets are sent to local levels (printed report only on demand)	
	25	Seti Provincial Hospital, Dhangadhi	Excel sheets are sent to local levels (printed report only on demand)	
	26	Dadeldhura Hospital Laboratory, Dadeldhura	Excel sheets are sent to local levels (printed report only on demand)	

# MIS reporting system

## In phase I

- Will only capture the total number of total tested, total positive and total negative.
- Virtual training done with COVID-19 testing laboratories network.
  - Laboratory focal points/data operators/managers of respective COVID-19 labs
- One on One virtual training is ongoing distantly with the laboratories who are struggling to understand the system. (sharing screens and orienting the HR)
- As of today: a total of 1,63,364 data has been entered from 24 different COVID-19 testing laboratories across the country.

# MIS reporting system





# MIS reporting system

Dashboard

Settings

Users

Sites

Send To Testing Site

Add Collection Form

Batches

Excel Import

Report Entry

Add New Report

Batches

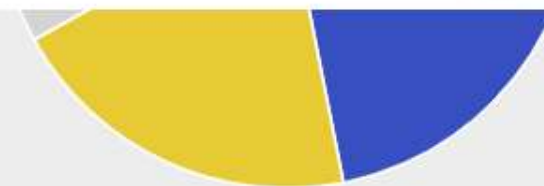
Excel Import

Reports

Province Wise

District Wise

Site Wise



## District Wise Report

Search:

District	Total	Negative	Positive
Achham	3012	2274	738
Arghakhanchi	1675	1319	356
Baglung	4048	3801	247
Baitadi	1960	1630	330
Bajhang	1350	1117	233
Bajura	1555	1241	314
Banke	233	231	2
Bara	1826	1772	54
Bardiya	320	317	3
Bhaktapur	2407	2392	15

Previous 1 2 3 4 5 ... 8

Showing 1 to 10 of 78 entries

Next

## Province Wise Report

Search:

Province	Total	Negative	Positive
Bagmati Pradesh	35954	35393	561
Gandaki Pradesh	19152	17903	1249
Karnali Pradesh	3924	3737	187
Province No. 1	14436	14033	403
Province No. 2	35537	31737	3800
Province No. 5	21643	18981	2662
Sudurpashchim Pradesh	31607	27212	4395

Showing 1 to 7 of 7 entries

Previous 1 Next

# User Login details

## User activities

- Dashboard >
- Settings >
  - Users >
  - Sites >
- Send To Testing Site >
- Add Collection Form >
- Batches >
- Excel Import >
- Report Entry >
  - Add New Report >
  - Batches >
  - Excel Import >
- Reports >
  - Province Wise >
  - District Wise >
  - Site Wise >

### User List


+ Add User

Name	Role	Site Name	Email	Address	Mobile No	Action
Umesh Shrestha	Standard User	HAMS	umesh@hamshospital.com	Dhumbarahi	9801172217	<a href="#">Edit</a> <a href="#">Delete</a>
Hospital for Advanced Medicine & Surgery	Standard User	HAMS	info@hamshospital.com	Dhumbarahi	9851172217	<a href="#">Edit</a> <a href="#">Delete</a>
Abishek Tulachan	Standard User	Bharatpur COVID-19 Diagnostic Lab, Chitwan	abishektulachan13@gmail.com	Kathmandu	9849429687	<a href="#">Edit</a> <a href="#">Delete</a>
Geeta Khatiwada	Standard User	COVID-19 Testing Laboratory, Dailekh	geetakhatiwada86@yahoo.com	Kathmandu	9841626231	<a href="#">Edit</a> <a href="#">Delete</a>
Om Raj Acharya	Standard User	Province Hospital Surkhet	omrajacharya@gmail.com	Surkhet	9848050774	<a href="#">Edit</a> <a href="#">Delete</a>
Roshan Adhikari	Standard User	Narayani Hospital	roshanadhikari33@gmail.com	Narayani	9849412391	<a href="#">Edit</a> <a href="#">Delete</a>
Jamuna Bhujell	Standard User	Karnali Academy of Health Sciences (KAHS)	krijansharma@yahoo.com	PAHS support	9843002787	<a href="#">Edit</a> <a href="#">Delete</a>
Hira Lal Bhandari	Standard User	Rapti Academy of Health Sciences	rapti.academy@gmail.com	Dang	9857832924	<a href="#">Edit</a> <a href="#">Delete</a>
Suman Sapkota	Standard User	Lumbini Provincial Hospital, Butwal	sumnsap@gmail.com	Butwal	9851141577	<a href="#">Edit</a> <a href="#">Delete</a>
D Dhakal	Standard User	KMC	ddhakal93@gmail.com	Bhaktapur	9841357774	<a href="#">Edit</a> <a href="#">Delete</a>

Showing 1 to 10 of 55 entries


Previous **1** 2 3 4 5 6 Next

# Assess Login details

Settings 

Users >


Sites >

Send To Testing Site 

Add Collection Form >

Batches >


Excel Import >

Report Entry 

Add New Report >

Batches >


Excel Import >

Reports 

Province Wise >


District Wise >

Site Wise >




System Log 

Access log >

Event log >

Admin 

### Access Log


All Users  Period: 07/23/2020 - 07/30/2020   Search:

S.N.	Description	Date	User
1	Admin logged in	2020-07-30 11:26:24	Admin
2	Hospital for Advanced Medicine & Surgery logged in	2020-07-30 10:39:50	Hospital for Advanced Medicine & Surgery
3	Gopal Prasad Adhikari logged in	2020-07-30 10:20:28	Gopal Prasad Adhikari
4	Lisa Tamang logged in	2020-07-30 09:39:38	Lisa Tamang
5	Dr. Narayan Bhattarai logged in	2020-07-29 22:23:05	Dr. Narayan Bhattarai
6	Admin logged in	2020-07-29 16:21:35	Admin
7	Hospital for Advanced Medicine & Surgery logged in	2020-07-29 15:47:51	Hospital for Advanced Medicine & Surgery
8	Admin logged in	2020-07-29 15:19:35	Admin
9	Sunaina Shrestha logged in	2020-07-29 15:12:32	Sunaina Shrestha
10	Admin logged in	2020-07-29 14:56:06	Admin

Showing 1 to 10 of 203 entries

Previous **1** 2 3 4 5 ... 21 Next

Activate Windows  
Go to Settings to activate Windows.



# Sample entry (Option for single entry)

Settings

Users >

Sites >

Send To Testing Site

Add Collection Form >

Batches >

Excel Import >

Report Entry

Add New Report >

Batches >

Excel Import >

Reports

Province Wise >

District Wise >

Site Wise >

System Log

Access log >

Event log >

Admin ▾

Laboratory Sample Collection Form

Save & Close (F8) Save & Next (F7) Back

<b>Date of Collection*</b>		<b>Collection Form Sample No.*</b>		<b>Testing Site</b>	
<input type="text" value="2020-07-30"/>		<input type="text"/>		<input type="text" value="Select Site"/>	
<b>Site Type</b>					
Type					
<input type="text" value="Select Site Type"/>					
<b>Patient Info</b>					
<b>Full Name*</b>		<b>Age*</b>	<b>Age Type*</b>		
<input type="text"/>		<input type="text"/>	<input type="text" value="Year"/>		
<b>Gender*</b>		<b>Date of Birth</b>			
<input type="text" value="Select Gender"/>		<input type="text"/>			
<b>Patient Present Address</b>					
<b>Province*</b>		<b>District*</b>		<b>Municipality*</b>	
<input type="text" value="Select Province"/>		<input type="text"/>		<input type="text"/>	
<b>Ward*</b>		<b>Tole</b>		<b>House No.</b>	
<input type="text"/>		<input type="text"/>		<input type="text"/>	

Activate Windows  
Go to Settings to activate Windows.

# Excel Template for reporting (BULK ENTRY)

The screenshot shows an Excel spreadsheet titled "covid\_reporting\_collection\_form (10).xlsx". The ribbon includes File, Home, Insert, Page Layout, Formulas, Data, Review, and View. The Home ribbon is active, showing options for Clipboard, Font, Alignment, Number, Styles, Cells, and Editing. The spreadsheet has columns labeled N through Y. The data is as follows:

	N	O	P	Q	R	S	T	U	V	W	X	Y
1	contact_of_sample_collector	patient_name	age	age_type	sex	dob_ad	dob_bs	temp_province	temp_district	temp_municipality	temp_ward	temp_tolk
2		test user	25	Y	Male		2020-06-07	Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	1	
3		new uswer	30	Y	Male			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	2	
4		new uswer	30	M	Male			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	3	
5		new uswer	30	D	Male			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	4	
6		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	5	
7		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	6	
8		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	7	
9		new uswer	30	M	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	8	
10		new uswer	30	D	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	9	
11		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	10	
12		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	11	
13		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	12	
14		new uswer	30	M	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	13	
15		new uswer	30	D	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	14	
16		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	15	
17		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	16	
18		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	17	
19		new uswer	30	M	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	18	
20		new uswer	30	D	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	19	
21		new uswer	30	Y	Female			Bagmati Pradesh	Kathmandu	Dakshinkali Municipality	20	

The dropdown menu for 'temp\_municipality' is open, showing a list of municipalities: Dakshinkali Municipality, Kageshwari-Manohara Municipality, Kathmandu Metropolitan, Nagarjun Municipality, Shankharapur Municipality, Tarakeshwar Municipality, and Tokha Municipality. 'Dakshinkali Municipality' is selected. A red circle highlights the dropdown menu.

## **Issue/ Challenges for MIS system**

- Completeness of Data at the lab
- Dedicated HR
- Frequent Turnover
- Willingness to send data

THANK YOU