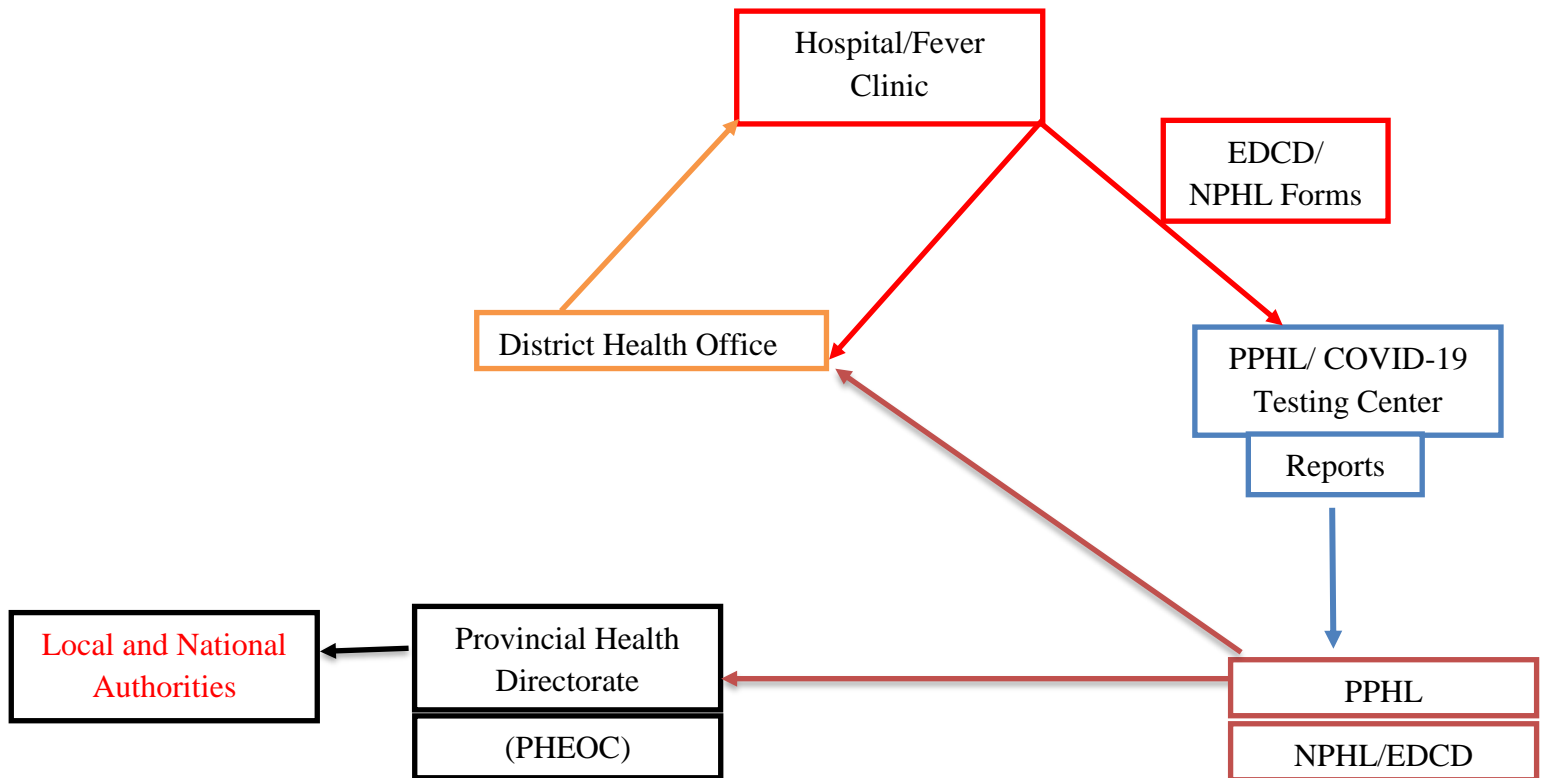


Standard Operating Procedure for COVID-19 testing


PPHL, Gandaki Province

Phone No: 061-525751

I. General algorithm





II. Contact persons and their details for sample collection:



Trained personnel for sample collection and transportation of COVID-19 at Gandaki Province

S.N.	Name	Organization	Phone Number	Designation	Training Date
1	Subhadra Dulal	Public Health Laboratory, Gandaki Province	9846794784	Lab Technician	23/11/2076
2	Janesh Thapa	Public Health Laboratory, Gandaki Province	9846148060	Lab Technician	23/11/2076
3	Sandip Pokhrel	Pokhara Academy of Health Sciences, PAHS	9844901537	Lab Assistant	23/11/2076
4	Sangita Paudel	DHO Kaski	9861250264	Lab Technician	09/12/2076
5	Deepak Shrestha	Maddebindhu Hospital, Nawalpur	9845088347	Lab Technician	09/12/2076
6	Chij Kumar Shrestha	Gorkha Hospital	9856005973	Lab Technician	09/12/2076
7	Narayan Babu Aryal	DHO Gorkha	9856040999	Lab Technician	09/12/2076
8	Aron Hang Subbha	HDCS Lamjung		Lab Technician	09/12/2076
9	Soni Koju	Beni Hospital	9841042328	Lab Technologist	09/12/2076
10	Sanjaya Gurung	Damauli Hospital	9846744256	Lab Technician	09/12/2076
11	Niraj Manandhar	DHO Tanahun	9846385494	Lab Technician	09/12/2076
12	Prithvi Lamichhane	Syangja Hospital	9846070863	Lab Technician	09/12/2076
13	Prativha Raj Bhandari	DHO Syangja	9846163707	Lab Technician	09/12/2076
14	Ujjwal Tiwari	Parbat Hospital	9841122812	Lab Technician	09/12/2076
15	Muna Sapkota	DHO Parbat	9849182261	Lab Technician	09/12/2076
16	Shovita Sharma	Baglung Hospital		Lab Assistant	09/12/2076
17	Dilli Prasad Acharya	DHO Baglung	9857637049	Lab Technician	09/12/2076
18	Shristi Shakya	Mustang Hospital		Lab Assistant	09/12/2076
19	Amit Bashyal	DHO Mustang	9847102991	Lab Assistant	09/12/2076
20	Suraj Adhikari	DHO Manang	9855050527	Lab	09/12/2076

वि. निर्देशक

				Technician	
21	Dhurba Giri	DHO Myagdi	9846420055	Lab Technician	09/12/2076
22	Dilli ram Tiwari	DHO Nawalpur	9847095011	Lab Technician	09/12/2076
23	Santosh Gautam	Lekhnath Community Lions Hospital	9867631666	Lab Technologist	09/12/2076
24	Nanda Kumari Gurung	Lekhnath Community Lions Hospital	9806721007	Lab Technician	09/12/2076

III. Standard Operating Procedure for COVID-19 testing:

1. Specimens:

Preferred specimen: Throat swab (Oropharyngeal swab)

Other specimens: Nasopharyngeal swab, Bronchoalveolar lavage (BAL), Tracheal aspirates, Sputum.

(For Rapid Diagnostic Tests (RDTs): Blood specimen collected at any time)

2. Throat swab collection:

- A. Fill up the forms issued by EDCD and NPHL (Attached).
- B. Use PPE properly before specimen collection.
- C. Label VTM tube.
- D. Ask the patient to open mouth wide.
- E. Depress the tongue using tongue depressor.
- F. Swab the posterior pharyngeal wall behind the tonsils with one applicator swab stick.
- G. Avoid the tonsils.
- H. Place the swab immediately into viral transport media and break the applicator stick.
- I. If second applicator swab is available in the same packet, use it to collect nasal swab.
- J. Put both swab stick in the same VTM tube.

3. Specimen transportation:

- A. Keep collected specimen at 2-4° C (refrigerator) till ready for transportation.
- B. Contact responsible person at COVID-19 testing center of Gandaki province before sending the specimen.
- C. Arrange for transportation in a way the sample is received at COVID-19 testing center within 24 hrs.
- D. Transport specimen in 3 layers packaging system* maintaining cold chain (2-4° C).
- E. Send the specimen with appropriate **forms filled up issued by EDCD and NPHL.**
- F. Do not keep the form inside the specimen box, send the form separately.**
- G. Ensure that the specimen is submitted to COVID-19 testing center properly.
- H. Contact Miss Sapana Subedi (**9849290027**), Deputy Director, PPHL Gandaki Province during office hours (10:00 AM to 4:00 PM) and Mr. Dipak Kafle (**9846832351**) after office hours.

*** Three layers sample packaging system:**

Layer 1- Put VTM with specimen in zip lock bag.

Layer 2- place the zip lock bag in air tight container lined with absorbent material.

Layer-3- place this air tight container in ice box/vaccine box with ice pack in all four corners.

4. Sample rejection criteria:

- A. If sample is transported without maintaining cold chain.
- B. If sample is received without proper form fill up.
- C. If sample is unlabeled.

5. Data entry and specimen processing in COVID-19 testing center

- A. Inform to the dispatch center that the sample is received properly at COVID-19 testing center.
- B. Enter the data in **specified form (EXCEL SHEET)** from the filled EDCD and NPHL forms.
- C. Process the Specimen after the data is entered properly.
- D. Record and disseminate the results through the proper channel.

6. Specimen processing steps in the laboratory are as follows:

- A. Ensure the laboratory condition is safe and instruments are working properly.
- B. Prepare master mix in the pre-PCR room.
- C. Use PPE properly.
- D. Transfer specimens and reagents in biosafety cabinet level 2 (BSC-2).
- E. Aliquot samples in 3 different tubes. Use one aliquot for test, save other two for sample backup (store properly at 2-4⁰C).
- F. Extract viral RNA from the specimen as per manufacturer's instructions.
- G. Add the extracted template to the master mix at the template addition room.
- H. Run the PCR mixture into the Real Time Thermocycler.
- I. Always run positive and negative controls simultaneously for the validity of the test results.
- J. Interpret the results based on CT-Value and graph of the sample.
- K. Record the findings in the **specified form (EXCEL SHEET Provided)**.
- L. Print the report in the form of hard copy, validate it by authorized person and hand over to PPHL.

M. Sample received before 10:00AM will be processed on the same day, sample received after 10:00AM will be processed the next day.

N. If samples cannot be run on the same day then store the specimen at 2-4°C till further processing and testing.

7. Result dissemination

A. Maintain confidentiality of all the reports and follow appropriate channel for dissemination of reports.

B. Follow General Algorithm (Section-I) for result dissemination.

8. Sterilization and decontamination

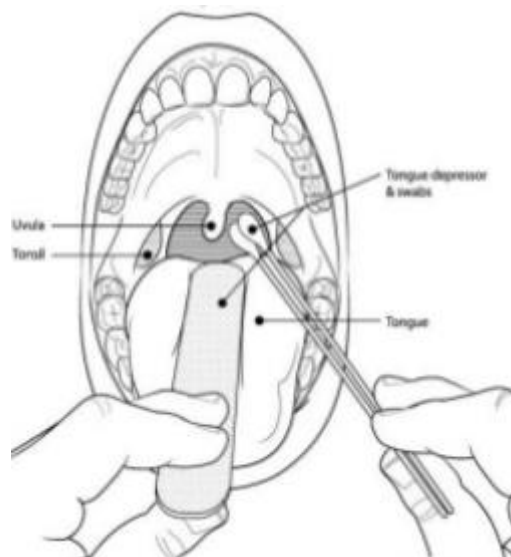
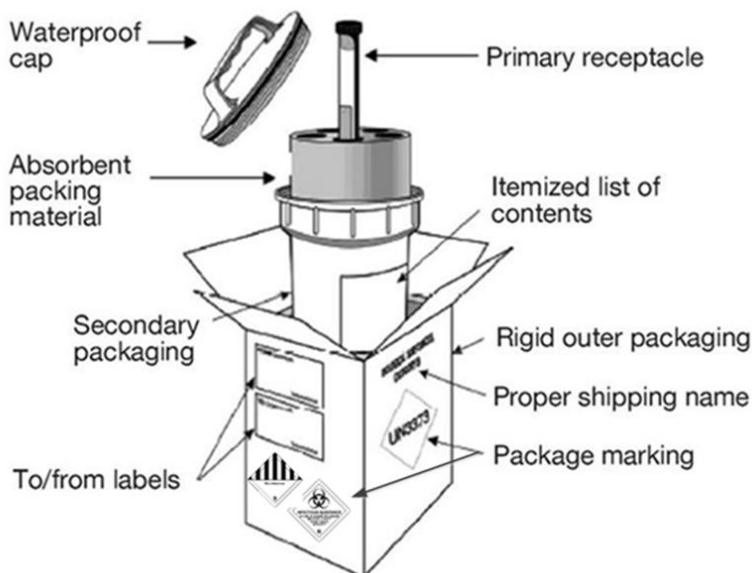
Decontamination should be carried out by following methods:

A. Autoclaving

B. Disinfection: Following disinfectants are recommended

- Sodium hypochlorite: 0.1% for general surface disinfection and 1% for disinfection of spills
- 70% Ethanol
- 0.5% Hydrogen peroxide

Three-layer packaging system & posterior pharyngeal swab collection

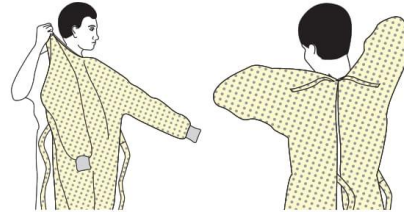


SEQUENCE FOR **PUTTING ON** PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



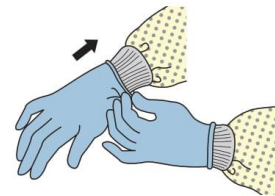
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

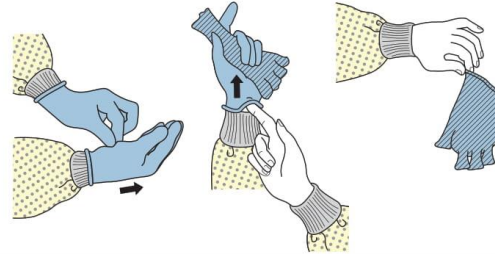


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



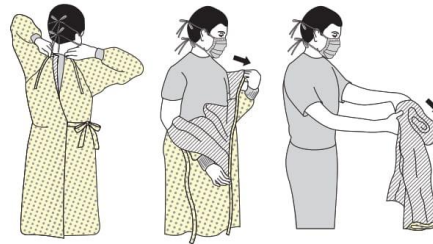
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



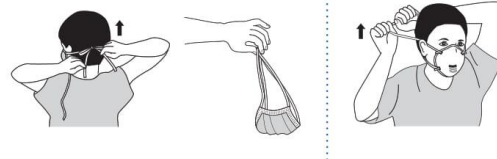
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

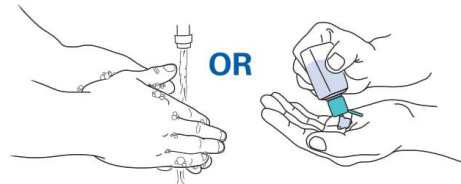


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS
BECOME CONTAMINATED AND IMMEDIATELY AFTER
REMOVING ALL PPE**

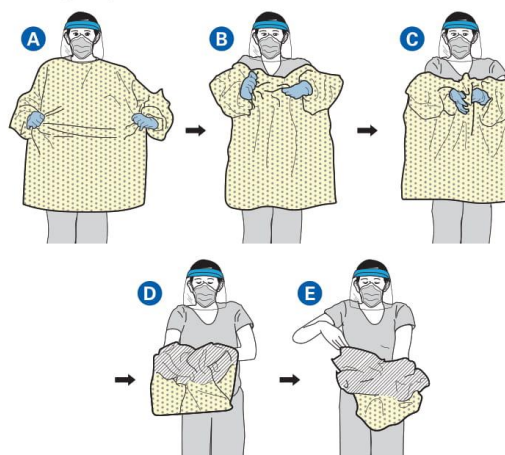


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



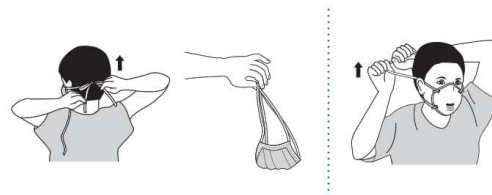
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

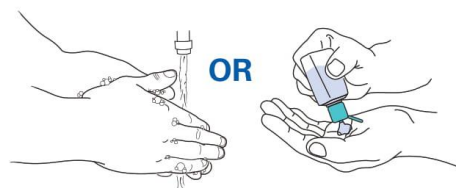


3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS
BECOME CONTAMINATED AND IMMEDIATELY AFTER
REMOVING ALL PPE**



Acknowledgement:

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2. Dr. Sanjib Mani Regmi, Gandaki Medical College
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4. Mr. Krishna Gurung, Prithvi Narayan Campus
5. Mr. Bala Ram Gautam, NAMS
6. Mr. Shreeram Bastola, NAMS
7. Dr. Rajeeb Lalchan, WHO

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3. Mr. Gyanendra Gautam, Gandaki Medical College
4. Dr. Binita Koirala Sharma, Gandaki Medical College
5. Dr. Jagat Bahadur Khadka, PBTPC, Pokhara
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