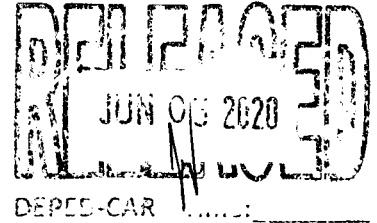




Republic of the Philippines  
**Department of Education**  
Cordillera Administrative Region

Office of the Regional Director

June 1, 2020



**REGIONAL MEMORANDUM**

No. J47.2020

**DISSEMINATION OF GUIDELINES ON ENVIRONMENTAL CLEANING IN  
WORKPLACES AND SCHOOLS**

To: Schools Division Superintendents  
Regional Office/Division/School Administrative Officers  
School Heads of Public Schools  
All Others concerned

1. The attached issuance of the DOH-CHD-CAR, Circular No. 2020-012, entitled Guidelines on Environmental Cleaning in Workplaces, Schools, Commercial Establishments and Other Similar Establishments as Infection Prevention and Control (IPC) Measure to Prevent the Transmission of COVID-19 and other Viral Diseases, is disseminated for reference and implementation in DepEd Offices and Schools.
2. It is reiterated that officials in DepEd Offices and Schools comply with the prescribed guidelines in the said issuance on environmental cleaning, disinfection and installation of engineering measures in preparing and maintaining the schools and offices to strengthen prevention of the disease.
3. For information, guidance, and compliance.

MBE/ETA/gaa

  
**MAY B. ECLAR PhD., CESO V**  
Regional Director



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Quality Management System  
DE-50500784 QM15



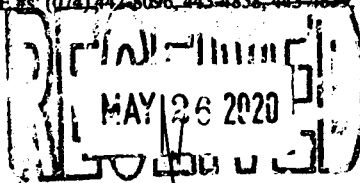
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May 07, 2020

**DOH-CHD-CAR CIRCULAR**  
 No. 2020 - 012



**TO: ALL PROVINCIAL/CITY DEPARTMENT OF HEALTH OFFICES, LOCAL GOVERNMENT UNITS, PROVINCIAL/CITY/MUNICIPAL HEALTH OFFICES, GOVERNMENT AND PRIVATE FACILITIES**

**SUBJECT: Guidelines on Environmental Cleaning in Workplaces, Schools, Commercial Establishments and Other Similar Establishments as Infection Prevention and Control (IPC) Measure to Prevent the Transmission of COVID-19 and Other Viral Diseases**

**I. BACKGROUND**

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus identified in December 2019 as a cluster of pneumonia cases. On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a Public Health Emergency of International Concern and eventually as a Global Pandemic on March 11, 2020.

In the absence of specific treatment or a vaccine, non-pharmaceutical interventions (NPI) form the backbone of the response to the COVID-19 outbreak. Non-pharmaceutical interventions are public strategies meant to mitigate and suppress transmission of infectious diseases. While the Enhanced Community Quarantine (ECQ) has been instrumental in slowing the rapid spread of the disease, local evidences suggests that the gains from the ECQ will be reversed in the absence of complementary interventions that will minimize case resurgence.

The Inter-Agency Task Force on Emerging Infectious Diseases (IATF-EID) Resolution No. 28 mandates that minimum public health standards be specified by the Department of Health (DOH) and adhered to by all sectors. These standards shall serve as a guide in institutionalizing key NPIs as IPC measures.

**II. DEFINITION OF TERMS**

1. **Administrative Control** - procedural interventions or modifications in policies, standards, and processes, that are meant to reduce the frequency and severity of exposure to infectious diseases (eg. hygiene and disinfection protocols, work shifting, etc.)
2. **Cleaning** - removal of visible dirt, organic matter, and other impurities from surfaces.



The round metal gong of the Cordillera known locally as "gangsa" is a symbol of the upland people's culture that has been passed on from generations to another. The profile of a person blowing a "tanggayub" represents a community being called for an important matter or action.

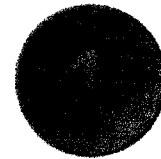
The lines that shape the mountains, the rice terraces, clouds and rivers symbolize the connectivity and flow of human interaction in a geographic area such as the Cordillera.

All the symbols combined represent unity and harmony of its people with culture and environment in beating the gong for Self-determination.





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3. **Disinfectant solution** - a chemical that destroys vegetative forms of harmful microorganisms especially on inanimate objects but that may be less effective in destroying spores.
4. **Disinfection** - the process of eliminating or reducing to safe levels the number of potentially infectious microorganisms on an item or surface by either thermal, chemical or other methods.
5. **Engineering Controls** - refer to physical interventions or modifications in spaces or environments, that is meant to prevent transmission of infectious diseases (eg. use of physical barriers, exhaust ventilations, etc.)
6. **Environmental Cleaning** - a process associated with cleaning and disinfection of surfaces and substances that can pose risk to human health.
7. **High-touch surfaces** - surfaces subjected to frequent hand-contact such as doorknobs, light switches, table tops, hand railings, phones, etc.
8. **Infectious waste** - this type of waste is most likely to contain pathogens (bacteria, viruses, parasites, or fungi) in sufficient concentration or quantity to cause diseases in susceptible hosts. Examples of infectious waste are: cultures and stocks of infectious agents from laboratory work; wastes from surgeries and autopsies on patients with infectious diseases (e.g., tissues, materials or equipment that have been in contact with blood or other body fluids); other instruments or materials that have been in contact with infected persons (such as PPEs) or animals.
9. **Low-touch surfaces** - surfaces subjected to minimal hand-contact such as walls, windowsills, ceilings.
10. **Non-pharmaceutical Interventions (NPI)** - refers to public health measures that do not involve vaccines, medications or other pharmaceutical interventions, that individuals and communities can carry out in order to reduce transmission rates, contact rates, and the duration of infectiousness of individuals in the population.
11. **Personal Protective Equipment (PPE)** - an equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

### III. SCOPE AND COVERAGE

Viruses, such as SARS-Cov-2 virus, can be transmitted through respiratory droplets which are generated when an infected person coughs or sneezes. There is no current evidence that the virus can be transmitted through food or water, but it may remain viable for two hours to nine days on hard surfaces depending on multiple factors such as temperature and humidity. Thus, one of the best practices for prevention of the disease is observance of regular cleaning and disinfection.

This guideline covers cleaning and disinfection in an office workplace, commercial, schools and other similar establishments. It also includes other engineering control measures which can be adapted by the facility.

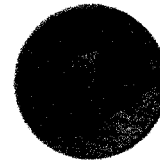


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Additional measures may be added by the employer or person-in-charge as the COVID-19 outbreak conditions change, as well as when new information on the virus, its transmission and impacts become available.

#### IV. RESPONSIBILITIES

- A. Employers shall ensure that proper engineering, administrative, and work practice controls are in place to protect the health and well-being of both workers and clients of the facility.
- B. Personnel shall be assigned in the regular cleaning and disinfection of the facility.

#### V. IMPLEMENTING GUIDELINES

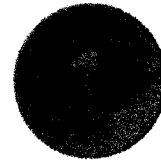
##### A. PROCEDURES FOR THE CLEANING AND DISINFECTION OF THE FACILITY'S VICINITY

1. **Assessment to ensure supplies are complete and adequate. Materials and Equipment needed are but not limited to the following:**
  - Bucket/pail
  - Mops (microfiber and polyester)
  - Cleaning cloths (cotton and synthetic microfibers)
  - Disinfecting agent (chlorine granules and household bleach)
  - Soap or detergent
  - Alcohol based hand rub
  - Bottle with sprayer
  - Garbage bags and bins
  - Personal Protective Equipment (See Table 1)
2. **Hand Hygiene** – all personnel shall observe proper hand hygiene by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, a 70% ethyl alcohol or alcohol-based hand sanitizer (ABHS) that contains at least 60% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water. In cases where soap and ABHS are unavailable, mild (0.05%) chlorine solution can be used (Appendix A).
  - a. Perform hand hygiene before:
    - preparing food;
    - eating or helping to feed someone; and,
    - treating a cut or wound.
  - b. Perform hand hygiene after:
    - simple handling of different food products, such as raw meat, poultry, and fish;
    - using the toilet;
    - blowing your nose, coughing or sneezing;
    - treating a cut or wound;



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- returning home or coming back indoors;
  - touching animal, animal feed, or animal waste;
  - touching garbage; and,
  - handling money.
- c. Perform hand hygiene when hands are visibly dirty.

3. **Personal Protective Equipment (PPE)** – Appropriate PPEs shall be worn at all times when cleaning and disinfecting surfaces. These should be discarded after cleaning. If reusable PPE is used, it should be dedicated for cleaning and disinfection of surfaces only and should not be used for other purposes. Proper donning and doffing of PPE is to be observed (Appendix B).

Table 1: Recommended PPEs

Setting	Personnel	Activity	PPE
Within the facility	Cleaner	Cleaning and disinfection	Eye protector or Face shield Disposable mask Gloves Scrub suit/any appropriate clothing Clog shoes or Rubber boots

4. **Preparation of Cleaning and Disinfecting Solutions**

- Clean water should be used in preparing the solution as organic matter found in dirty/murky water lowers the properties of the solution.
- The solutions are recommended for use on hard, non-porous surfaces such as wood, plastic, concrete, tiles, etc. For other surfaces such as metal, couches and upholstery, approved commercially available spray disinfectants (e.g. Lysol) shall be used as recommended by the manufacturer.

4.1 **Soapy Water for Cleaning** – This solution is used to clean high-touch surfaces in the facility.

- Dissolve one (1) tablespoon of soap or detergent powder for every four (4) liters of clean water.

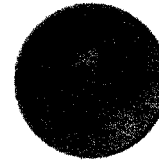
4.2 **Disinfectant Solution** – This solution is used to decontaminate high-touch surfaces in the facility.

- Strong chlorine disinfectant solution should be prepared at least thirty (30) minutes prior to scheduled decontamination schedule. See Appendix C for the different options in preparing a strong chlorine solution.
- Unused chlorine solution should be stored in a cool dry place with a lid away from sunlight.
- It shall be used within 24 hours otherwise they have the potential to lose potency and efficacy at disinfection.





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## 5. Environmental Cleaning

### a. Cleaning

- Cleaning should be carried out prior to disinfection. This is to maximize disinfecting properties of the prepared solution for disinfection.
- Visible dirt/contaminants should be removed manually/brushed off/swept to ensure maximum efficacy of disinfectant solution.
- Different cleaning materials such as cleaning cloths and mops utilized for regular cleaning should be different from those used for disinfection.

### b. Disinfection of High-Touch Surfaces

- Wear appropriate PPEs.
- Use two-bucket system when doing a routine cleaning: one bucket contains a detergent or cleaning solution and the other contains rinse water.
- Use three-bucket system for disinfection: first bucket contains the detergent or cleaning solution, second bucket contains rinse water, and the third bucket contains disinfectant.
- Disinfection of high-touch surfaces should be done at least once a day.
- Ensure adequate ventilation by opening windows and doors or use mechanical ventilation equipment.
- Use spray bottle and cleaning cloth or disposable towel to apply disinfectant on surfaces. Dipping cleaning cloth in disinfectant solution is not recommended since it can lower its disinfection properties.
- Meticulously wipe non-porous surfaces by starting from cleaner areas making your way towards dirtier areas and fold it inward after each wipe.
- For soft (porous) surfaces such as carpets, rugs, curtains and drapes, remove visible contaminant with appropriate cleaners and use any locally available disinfectants (e.g. Lysol) and follow manufacturer's instruction on application.

### c. Disinfection of Low-Touch Surfaces

- Wear appropriate PPEs.
- Use two-bucket system when doing a routine cleaning: one bucket contains a detergent or cleaning solution and the other contains rinse water.
- Use three-bucket system for disinfection: first bucket contains the detergent or cleaning solution, second bucket contains rinse water, and the third bucket contains disinfectant.
- Proceed in a systematic manner (e.g. left to right) when cleaning and disinfecting floors and walls. Clean and disinfect floors, walls, windows, or ceiling when there is evidence of visible dirt.
- Proceed from clean to dirty. Clean low-touched surfaces before cleaning high-touched surfaces to ensure appropriate disinfection.
- Proceed from high to low. Clean high surfaces before cleaning low surfaces (walls to floor).



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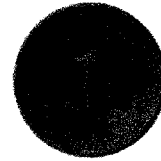
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**6. How to Disinfect Reusable PPE**

- Use long cleaning gloves for the process.
- Reusable PPEs (e.g. rubber boots, safety goggles) shall be soaked in strong (0.5%) chlorine solution for at least thirty (30) minutes then launder and allowed to air or sun-dry.

**7. Proper Segregation, Collection, Storage and Transport of Infectious Waste**

- The management of the facility shall ensure that all infectious wastes are managed properly and in a safe manner. They shall comply to standards under Department of Health's Healthcare Waste Management Manual 4<sup>th</sup> Edition and other existing laws.
- All disposable PPEs are considered as infectious waste and shall be disposed separately from regular waste. Ordinary garbage bags are allowed in lieu of yellow infectious bags as long as it is thick and colorless. When waste bag reaches 2/3rds capacity, seal the bag and dispose. These bags shall be labeled as "INFECTIOUS WASTE".
- If daily waste collection is not available in the area, a separate storage area for infectious waste must be provided within the premises where it will be stored until such time that it can be collected for final disposal. It shall be located away from direct exposure to the elements and shall be inaccessible to vermin such as rats and insects.

**B. PROCEDURES FOR THE CLEANING AND DISINFECTING OF FACILITY VEHICLE**

- Drivers assigned to the vehicles shall be in charge of cleaning and disinfecting of the facility vehicles. Cleaning and disinfecting of vehicle shall be done at least once a day. If in case the vehicle is used to transport a suspect, probable, or positive COVID-19 case, cleaning and disinfection shall be done every after transport prior to next use.

**1. Materials and Equipment Needed (but not limited to the following):**

- Bucket/pail
- Cleaning cloths (cotton and synthetic microfibers)
- Disinfecting agent (chlorine granules and household bleach)
- Soap or detergent
- Alcohol based hand rub
- Bottle with sprayer
- Garbage bags and bins

- 2. Personal Protective Equipment** - Appropriate PPEs shall be worn at all times when cleaning and disinfecting surfaces. These should be discarded after cleaning. If reusable PPE is used, it should be dedicated for cleaning and disinfection of surfaces only and should not be used for other purposes.

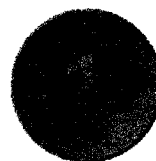


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**Table 2: Recommended PPE for Cleaning and Disinfection**

Setting	Personnel	Activity	PPE
Vehicle	Cleaners	Cleaning and disinfection	Eye protector or Face shield Disposable mask Gloves Clog shoes or Rubber boots

**3. Cleaning and Disinfection of Facility Vehicle**

- Perform hand hygiene before donning PPEs.
- Clean the vehicle's interior and exterior before proceeding with disinfection. Visible dirt/contaminants should be removed manually/brushed off/swept to ensure maximum efficacy of disinfectant solution.
- Cleaning and disinfection shall start at cleaner parts of the interior of the vehicle with the procedure ending at the dirtiest area.
- When applying disinfectant solution, make sure vehicle interior is well ventilated by keeping car doors open.
- Use spray bottle to apply disinfectant on surfaces directly or spray on clean cloth then wipe surfaces. Dipping cleaning cloth in prepared disinfectant solution lowers its disinfecting properties. Allow to air dry. For porous surfaces such as upholstery, any available disinfection products (e.g. Lysol) can be used. Follow manufacturer's instruction for application.
- Manually wipe down the vehicle's exteriors which are frequently touched such as doors handles, and windows with disinfectants. The exterior does not require full disinfection wipe down.
- Allow disinfectant solution to dry for ten (10) minutes. Use a separate clean cloth to wipe off residue after.

**C. INSTALLATION OF ENGINEERING MEASURES**

**1. Hand Hygiene Station**

*Materials and Equipment Needed*

- Handwashing sink
  - Soap and Water
  - 70% ethyl alcohol / 60% alcohol content hand sanitizer
  - Liquid Dispenser (for soap/alcohol/sanitizer)
  - Disposable Hand Towels/Hand Dryer
  - Trash bin with plastic liner
- Install hand hygiene facilities at entry points or/and at strategic places within the establishment.
  - A temporary handwashing facility can be utilized. Provide adequate soap, water and paper towels.



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- Ensure that the handwashing facility has an adequate drainage area to avoid pooling and stagnation of waste water at the handwashing area as this can encourage the breeding of vectors like mosquitoes.
- Install IEC materials on proper hand hygiene at hand hygiene stations.

## 2. Foot Baths

### *Materials and Equipment Needed*

- Strong bristle brush
  - Two plastic/nonmetallic trays (with labeled or color coded for easy identification)
  - Clean Water
  - Strong (0.5%) chlorine disinfectant solution
  - Floor rugs
  - Cardboard box/non-absorbent rug
- A foot bath can be added as a precautionary measure in the facility to disinfect the shoes of all persons entering the facility since a study conducted by the US CDC in a healthcare facility in WUHAN from February 9 to March 2, 2020, yielded that the shoe soles of half of the medical staff in the ICU units tested positive for the virus. With this finding, proper cleaning and disinfection of foot wears is encouraged.
  - Position two trays at all points of entry. Fill the first tray with water and the second one with strong (0.5%) chlorine solution.
  - For visibly dirty footwear, let the person brush off excess dirt with a hard bristle brush.
  - The first tray is where people will rinse the soles of their foot wear before stepping on the second tray. Rinsing the footwear with water first removes loose organic matter on the soles which can lower the disinfecting properties of the solution.
  - Allow the people to rub excess solution from their shoes on a cardboard box or any non-absorbent material.
  - Make sure that the disinfectant solution is not exposed to heat or sun.
  - Replace the water in the first tray when it is visibly dirty. Replace the disinfectant solution every few hours or when solution is visibly murky as the disinfectant solution naturally loses more of its efficacy with contact to footwear.

## 3. Physical Barriers

### *Materials and Equipment Needed*

- Clear Plastic Covers
  - Sticky tapes
- As the virus can be spread through respiratory droplets, physical barriers can be added in areas where clients are received and serviced.
  - Install clear plastic covers between employee's working space and receiving area.
  - Regular cleaning and disinfection of the plastic is recommended. When there are tears in the material, replace the barrier.



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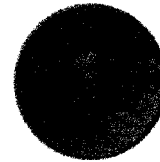
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- For devices and equipment that are considered high-touch surfaces (e.g. keyboards), consider wrapping them with plastic covers for easier cleaning and disinfection and to protect the device from deterioration due to constant exposure to disinfectant solution.


## VI. References

1. [osha.gov/Publications/OSHA3990.pdf](https://www.osha.gov/Publications/OSHA3990.pdf)
2. [file:///C:/Users/DOH/Downloads/WHO-2019-nCoV-IPC\\_WASH-2020.2-eng.pdf](file:///C:/Users/DOH/Downloads/WHO-2019-nCoV-IPC_WASH-2020.2-eng.pdf)
3. [https://apps.who.int/iris/bitstream/handle/10665/150118/WHO\\_HIS\\_SDS\\_2015.4\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/150118/WHO_HIS_SDS_2015.4_eng.pdf?sequence=1)
4. <https://cdc.gov/infectioncontrol/guidelines/environmental/background/services.html>
5. [https://wwwnc.cdc.gov/eid/article/26/7/20-0885\\_article](https://wwwnc.cdc.gov/eid/article/26/7/20-0885_article)
6. <https://www.farmbiosecurity.com.au/biosecurity-basics-make-your-own-footbath/>
7. <https://syndel.com/product/disinfecting-foot-mats-rubber/>
8. DOH DM 2020-015: Guidelines on the Risk-Based Public Health Standards for COVID-19 Mitigation
9. DOH DM 2020-0056: Guidelines for COVID-19 Response in Workplace
10. DOH DC 2020-0131: Guidance for Institutions if a PUI or a Confirmed COVID-19 Case is Detected at the Workplace

## VII. Appendices

1. *Appendix A: Preparation of a Mild Solution*
2. *Appendix B: Proper Donning and Doffing of PPEs*
3. *Appendix C: Preparation of a Strong Solution*

For your guidance and strict compliance.

  
AMELITA M. PANGILINAN, MD, MPH, CESO IV  
OIC-Director IV

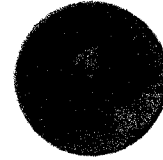


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**Appendix A**  
**Preparation of a Mild Solution**

**Mild (0.05%) chlorine solution for hand hygiene and bare skin application**

– This solution can be used as alternative for hand washing when soap and water, and alcohol-based hand rub (ABHR) are unavailable. Preparation can be through the following options:

**Option 1: Using 70% chlorine content chlorine granules**

- Dissolve one (1) tablespoon of chlorine granules for every twenty (20) liters of clean water. Mix and wait for thirty (30) minutes before use.

**Option 2: Using strong (0.5%) chlorine solution**

- Proportionate the strong chlorine solution by mixing one (1) part of chlorine disinfectant to nine (9) parts of clean water.
- Then get one (1) part of the previously prepared solution to be added to nine (9) parts of clean water to finally make a hand disinfectant solution. Mix thoroughly before use.

**Option 3: Using commercially available liquid bleach (e.g. Clorox, Zonrox, Lysol)**

- Mix one (1) part liquid bleach to ninety-nine (99) parts of clean water. Mix thoroughly before use.
- Example: To make a one (1) liter solution, Add 10 ml of liquid bleach to 990 ml of clean water.

*Note: "Parts" can be used for any unit of measure (eg. ounce, cup, tablespoon, litre or gallon) or any container used for measuring.*



The round metal gong of the Cordillera known locally as "*gungsa*" is a symbol of the upland people's culture that has been passed on from generations to another. The profile of a person blowing a "*tangguyub*" represents a community being called for an important matter or action. The lines that shape the mountains, the rice terraces, clouds and rivers symbolize the connectivity and flow of human interaction in a geographic area such as the Cordillera. All the symbols combined represent unity and harmony of its people with culture and environment in beating the gong for Self-determination.





**Appendix B**  
**Proper Donning and Doffing of PPEs**

*Proper donning of PPEs*

**1 Maghugas ng kamay**

- Maghugas ng kamay gamit ang tubig at sabon nang 20 segundo
- Kung walang tubig o sabon, gumamit ng alcohol na hindi bababa sa 70% concentration at ikuskos ito

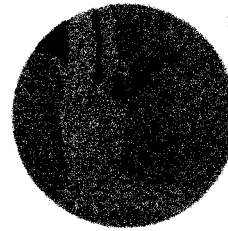


**2**

**Isuot ang reusable apron o coverall**



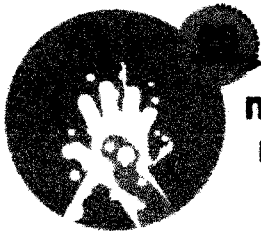
**3 Isuot ang boots o lagyan ng foot cover ang sapatos**



Siguraduhing walang butas ang boots o sapatos at walang nakikitang balat sa paa

**4**

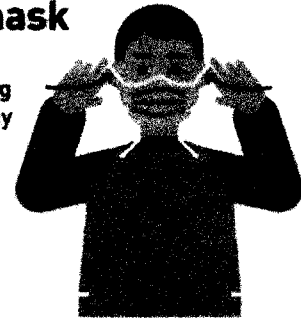
**Muling maghugas ng kamay**



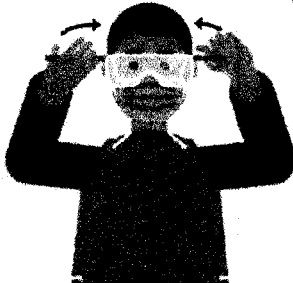
**5**

**Isuot ang face mask**

- Siguraduhing nasa taas ang parteng may metal at ang parteng may kulay ay nasa labas
- Ilagay sa mukha ang mask, pisilin sa bandang ilong at tsaka ilagay sa tenga ang tali
- Higitin ang ita-ling ng mask para matatakpan nito ang bibig at baba



**6 Isuot ang goggles o face shield, kung kinakailangan**



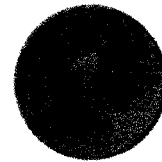
Isuot ito kung talapit sa mga COVID-19 positive na pasyente o posibleng masaktan ang mga mata sa disinfection solution

**7**

**Isuot ang heavy-duty gloves**

Siguraduhing walang butas ang gloves at walang nakikitang balat sa kamay at braso





BGHMC Compound, Baguio City 2600  
 Tels. /Fax Nos. (074) 442-8097 to 98 TRUNK LINE #s: (074) 442-8096, 443-4858, 443-4859, 442-7591 www.caro.doh.gov.ph

**Proper doffing of PPEs**

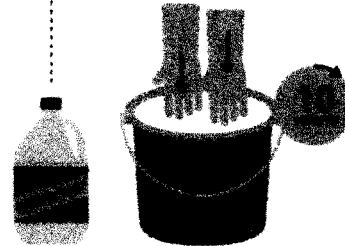
**Tanggalin ang boots o foot cover ng sapatos**

- Kung reusable ay itagay sa lalagyan na may disinfectant para magamit ulit
- Kung disposable ang foot cover ay itapon ito sa basurahan



**Tanggalin ang heavy-duty gloves**

Hayaang nakababad sa disinfectant sa loob ng 10 minuto



**Maghugas ng kamay**

- Maghugas ng kamay gamit ang tubig at sabon nang 20 segundo
- Kung walang tubig o sabon, gumamit ng alcohol na hindi bababa sa 70% concentration at ikuskos ito

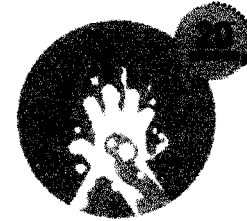


**Hubarin ang reusable apron o coverall**

Kung reusable, idisinfekt gamit ang disinfectant para magamit ulit



**Maghugas ulit ng kamay**



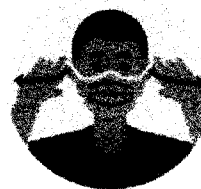
**Tanggalin ang goggles**

Itagay sa lalagyan na may disinfectant para magamit ulit

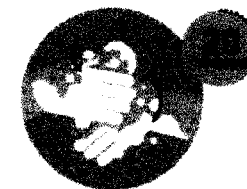


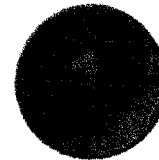
**Tanggalin ang face mask**

- Hawakan mula sa lastiko sa tenga
- Huwag hahawakan ang harap na parte
- Itapon sa basurahan



**Muling hugasan ang kamay**





**Appendix C**  
**Preparation of a Strong (0.5%) Chlorine Solution**

**Strong (0.50%) chlorine solution**

– this solution is used to clean and disinfect surfaces, objects, body fluid spills, reusable PPEs, and other materials intended for decontamination. It can also be used as solution for foot baths. Preparation can be through the following options:

**Option 1: Using 70% chlorine granules**

Chlorine Granules (tablespoon) = Volume of Water x 0.50

Chlorine Granules (tablespoon) = 10L x 0.50 = 5

Therefore, you must dissolve 5 tablespoons of chlorine granules in 10 liters of clean water.

**Option 2: Using other chlorine granules (e.g. 35% chlorine content)**

Chlorine Granules (grams) =  $\frac{\% \text{ Chlorine Desired}}{\% \text{ Chlorine Content}} \times 1000$

Chlorine Granules (grams) =  $\frac{0.50\%}{35\%} \times 1000 = 14.30$

Therefore, you must dissolve 14.30 grams of chlorine granules in each liter of clean water.

*Note: After mixing chlorine granules/powder, wait for thirty (30) minutes to allow the granules to dissolve fully before use.*

**Option 3: Using commercially available liquid bleach (e.g. Clorox, Zonrox, Lysol)**

Using 1:10 bleach to water ratio or Dissolve one (1) part of liquid bleach in nine (9) parts water.

*Example: To prepare one (1) liter of disinfectant solution, mix 100 mL of liquid bleach with 900 mL of clean water in a container. Mix thoroughly before use.*

