Islamic Republic of Afghanistan
Ministry of Public Health
Directorate of Pharmaceutical Services

CORONAVIRUS, COVID-19 INFECTION

Part-I: Guidance and Prevention Strategies for Hospital/Health Facility Pharmacists

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ACRONYMS

ANPA	Afghanistan Nationwide Pharmacy Association
BHC	Basic Health Center
BPHS	Basic Packing of Health Services
COVID-19	Coronavirus disease identified in 2019
DPS	Directorate of Pharmaceutical Services
DTC	Drug and Therapeutic Committee
EPHS	Essential Package of Health Services
EU	European Union
FIP	International Pharmaceutical Federation
GCMU	Grants Contracts Management Unit
GDCM	General Directorate of Curative Medicine
HCoV	human coronaviruses
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
ml	milliliter
MoPH	Ministry of Public Health
NGO	Non-Governmental Organization
NIOSH	US National Institute for Occupational Safety and Health
PPE	Personal Protective Equipment
RH	Regional Hospital
SARS-CoV-2	Severe Acute Respiratory Syndrome coronavirus 2
WHO	World Health Organization

Preface

Coronaviruses are a large family of viruses, ranging from the common cold virus to SARS. These viruses were discovered in 1965 and continued to be studied until the mid-1980s. Although coronaviruses are more common in animals, five of them affect the human respiratory system. In 2003, the virus caused Severe Acute Respiratory Syndrome (SARS) in Asian countries, infecting about 8,000 people out of which 800 were died (10% deaths). In 2012, another strain of this virus spread and caused Middle East Respiratory Syndrome (MERS), in which 2,494 people became infected, of whom 780 died in Saudi Arabia alone (37% deaths).

The Office of the World Health Organization (WHO) in China, on December 31, 2019 reported the prevalence of pneumonia cases with unknown causes. Subsequently, China identified the spread of a new type of coronavirus, the first case was announced on January 7, 2020. The outbreak of the new coronavirus (COVID-19) in Wuhan, Hubei, has become a major global concern and has spread to most countries. The spread of the virus in Iran, given the proximity and contact of Afghans with the country and the extent of travel, has caused serious concern in Afghanistan. The first positive case of COVID-19 was confirmed in Herat on February 24, 2020 in a patient who had recently returned from Qom city, Iran, raised concerns in Afghanistan and called for serious attention from all health workers. In most countries, the first victims of the epidemic are health workers who are in contact with the sick and the first to prevent the spread of the virus. Therefore, the preventive and control strategies mentioned in these guidelines should be strictly considered, especially by the pharmacist.

In Afghanistan currently there are around 4204 public health facilities (from BHC to RH levels) excluding Tertiary and Specialty hospitals, as well as, excluding private hospitals. Hence, the Directorate of Pharmaceutical Services (DPS) in coordination with the relevant committee of the MoPH on COVID-19 developed these guidelines and strategies under the title “Part-I: Guidance and Prevention Strategies for Hospital/Health Facility Pharmacists” in order to provide relevant information and guidance on the COVID-19 pandemic for pharmacists and the pharmacy workforce in Afghanistan in public context i.e. BPHS/EPHS health facilities and hospitals, Tertiary and specialty hospitals, as well as, private hospitals. (part-II in a separate document includes guidance and preventive strategies for retail pharmacy outlets).

Hence, the recommendations of these guidelines are expected to be adhered by the pharmacies of BPHS, EPHS health facilities, Tertiary and specialty hospitals pharmacists, throughout the country. The adherence is expected to be monitored by the relevant entities such as GDCM, GCMU and BPHS/EPHS implementer NGOs.

1. Source of coronavirus

The source of the infection were originally animals, but now the infection is transmitted from human to human. Transmission can occur when patients are symptomatic, but also before any symptoms appear, and even from asymptomatic patients.

2. Symptoms of COVID-19

The COVID-19 virus affects different people in different ways. COVID-19 is a respiratory disease and most infected people will develop mild to moderate symptoms and recover without requiring special treatment. People who have underlying medical conditions and those over 60 years old have a higher risk of developing severe disease and death.

Common symptoms include:

- fever
- tiredness
- dry cough.

Other symptoms include:

- shortness of breath
- aches and pains
- sore throat
- and very few people will report diarrhea, nausea or a runny nose.

People with mild symptoms who are otherwise healthy should self-isolate and contact their medical provider or a COVID-19 information line for advice on testing and referral.
People with fever, cough or difficulty breathing should call their doctor and seek medical attention.

3. Modes of transmission and incubation period of COVID-19

The transmission of COVID-19 can occur as follows:

1. Most often, COVID-19 is spread from person to person among close contacts.
2. Person-to-person spread occurs mainly via respiratory droplets produced when an infected person speaks, coughs or sneezes.
3. These droplets can land in the mouths, noses or eyes of people who are nearby or possibly be inhaled into the lungs.
4. When a person touches a surface or object that has the virus on it and then touches their own mouth, nose or eyes.
5. Transmission can occur when patients are symptomatic, but also before any symptoms appear, and even from asymptomatic patients.
6. Patients may remain contagious up to two weeks after the remission of symptoms.
7. In pregnant women, intrauterine or perinatal transmission has not been identified.
8. In breastfeeding women, the virus has not been detected in breast milk. The World Health Organization presently states that mothers with COVID-19 can breastfeed.
9. Regarding the possibility of reinfection, the immune response to COVID-19 is not yet understood. Patients with MERS-CoV infection are unlikely to be re-infected shortly after they recover, but it is not yet known whether similar immune protection will be observed for patients with COVID-19.
10. The median incubation period is estimated at 5.1 days. This suggests that the 14-day quarantine period

recommended by the WHO is reasonable. 97.5% of people who develop symptoms will do so within 11.5 days of exposure.

4. Responsibilities and role of hospital and clinical pharmacy

4.1. Hospital pharmacies

Hospital pharmacies in outbreak-affected and unaffected areas play an important role in:

- As a secretary of hospital DTC, ensuring adequate storage and supply of appropriate stocks of relevant medicines and other medical products and devices to supply the demand, including masks, thermometers, goggles and other necessary equipment and ensuring their rational use
- Active involvement and ccollaborating with other healthcare professionals in providing patient care and support
- Promoting hospital prevention and infection control, and establishing close coordination with the infection control committee of the hospital (see heading 8 below for cleaning and disinfection management)
- Ensuring the responsible use of the pharmaceutical products supplied. For example, ensuring that healthcare professionals wear their masks appropriately and know how to take them off correctly to avoid contamination (see heading 9 below for use of mask).

4.2. Responsibilities and role of clinical pharmacy

Clinical pharmacies in outbreak-affected and unaffected areas play an important role in:

- Active involvement in patient care
- Contribution to treatment- decisions
- Ensuring safe and effective use of medicine
- Clinical pharmacist visits their patients each day
- Providing advice to doctors and nurses
- Pharmacovigilance and monitoring treatment outcomes
- Supervision and teaching of pharmacy students
- Members of specialized hospital committees
- Educating, advising and informing patients and their families

5. Preventive measures

Pharmacists and the pharmacy workforce can play a key role in preventing the spread of coronavirus SARS-CoV-2 by understanding the nature of the disease, how it is transmitted, and how to prevent it from spreading further (see headings 1, 2 and 3 above for what is SARS-CoV-2, Symptoms and modes of transmission). Knowing how to access national level information sources[1] regarding the COVID-19 strategies (including the closest referral centre for COVID-19). Informing, advising and educating the community. Supplying appropriate products. Encouraging individuals and families with suspected cases of COVID-19 to either self-isolate in home confinement if symptoms are mild and the affected patients do not belong to the higher-risk groups, (over 60 years of age, underlying cardiovascular or respiratory conditions, diabetes, cancer or other congenital or acquired conditions that may compromise the immune response). Patients belonging to such groups should be referred to appropriate healthcare facilities for a screening test and appropriate follow-up.

In addition, the following measures should be considered by the pharmacy management:

5.1. Develop emergency plans and work flow

To ensure the effective implementation of the epidemic prevention and control at the pharmacy department, as well as providing effective pharmaceutical care guarantee, a pharmaceutical work leading group shall be established under

[1] Link of MoPH guidelines on COVID-19:
https://moph.gov.af/dr/%D8%B1%D9%87%D9%86%D9%85%D9%88%D8%AF-%D9%87%D8%A7%DB%8C-%D9%88%D8%B2%D8%A7%D8%B1%D8%AA-%D8%B5%D8%AD%D8%AA-%D8%B9%D8%A7%D9%85%D9%87

the unified leadership of medical institutions, and corresponding emergency plans and working procedures should be established. The contents may include but not limited to:

1. human resource management
2. drug supply guarantee
3. drug dispensing management
4. clinical pharmaceutical care management
5. medication consultation management
6. drug quality control management
7. pharmaceutical education and scientific research management
8. epidemic prevention and control
9. management of donated drugs
10. and related information reporting.

5.2. Conduct all-staff training

Provide training for all staff on the knowledge of the 2019-nCoV infection prevention and control. Determine the training contents for different personnel according to the responsibilities. In particular, provide key training for the high-risk departments (outpatient pharmacies of the fever clinic, emergency department or at the isolated area) and pharmacy personnel participated in high-risk operations (such as contact with confirmed or suspected patients, aerosol or body fluid exposure that may result from patient specimen processing). Supervise and urge staff to complete the training in time to ensure that they are proficient in the prevention and control knowledge, methods and skills of the 2019-nCoV infections, and to achieve effective prevention with early detection, early reporting, early isolation, early diagnosis, early treatment and early disease control.

5.3. Pay attention to the health of pharmacists

The pharmacy department should allocate human resources and arrange shifts reasonably to avoid overwork of pharmacists. Pharmacists shall be recommended to keep a healthy diet. According to the post characteristics and risk assessment results, perform active health status monitoring, including checking body temperature and respiratory symptoms. Take multiple measures to ensure pharmacists stay healthy while providing pharmacy services to patients. Pay attention to the mental health of pharmacists and their emotional management.

5.4. Protect pharmacy staff from the infection

The pharmacy department shall standardize the disinfection, isolation and protection work procedures, and stock sufficient protective materials with qualified certificates, including disinfection products and medical surgical masks, medical protective masks, isolation gowns, eye masks and other protective supplies, to ensure adequate protection for the pharmacy staff. On top of strict implementation of standard prevention, emphasize the prevention of contact transmission, droplet transmission and air transmission. Selecting and wearing the masks correctly and hand hygiene are key measures for the prevention and control of infections. During the epidemic of the novel coronavirus infection, pharmacy staff shall perform safety protection.

5.5. Monitor pharmacists' infection closely

Pharmacists should strengthen their awareness of self-warning and prediction in the early stage of infection prevention and control. When a pharmacist is suspected of the 2019-nCoV infection, it must be reported within 2 hours following relevant requirements, and the corresponding disposal and referral shall be made. Additional monitoring shall be performed for pharmacists working in high-risk departments (pharmacies in the fever clinic, emergency department and the isolated areas) and pharmacists participating in high-risk operations (such as contact with confirmed or suspected patients, contact with aerosol or body fluid exposure that may be generated by patient specimen processing).

5.6. Strengthen the management of cleaning and disinfection

As the 2019-nCoV can be transmitted through droplets and contact, the corresponding areas of the pharmacy department in hospitals shall be disinfected (see heading 8 below for cleaning and disinfection management).

5.7. Strengthen patient education

Pharmacists shall actively participate in the education of patients and their accompanying persons through outpatient pharmacies and consultation, to help them understand the preventive and pharmaceutical knowledge of the 2019-nCoV infections.

5.8. Strengthen the management of infection exposure

Strictly implement the rules and regulations on the infection prevention and control in medical institutions. Reduce the exposure to potential infection vectors (such as paper prescriptions, medication transportations, etc.) when providing pharmacy services, and minimize the risk of infection exposure. If the 2019-nCoV infection exposure occurred, it should be immediately reported to the relevant departments of the medical institution. Emergency plans should be initiated in accordance with relevant standards and procedures, and cooperation should be made with investigation and disposal.

5.9. Strengthen the management of medical waste

Incorporating the medical waste generated by the confirmed or suspected patients of the 2019-nCoV infection into the management of infectious medical waste. Medical waste generated for providing pharmacy services shall be collected in accordance with relevant regulations of the health administrative department or medical institutions (as well as, in accordance with the National Policy for Waste Management and Safe Disposal of Pharmaceutical Products 2016), and then coordinated with relevant departments for standardized disposal. In order to do this, we need to manage by specially-assigned persons, collect and make records in a timely manner, make classified storage, transport by special vehicles, and dispose them at designated locations.

6. Guidance for providing hospital pharmacy services

6.1. Risk and management of infection exposure

The personal protection of pharmacists and pharmacy workforce should follow the requirements of infection prevention and control in their hospital strictly. Based on the principle of standard precautions and according to clinical high-, medium-, and low-level exposure risk, most of the pharmaceutical posts are considered as low-risk exposure, and some are at moderate to high risk exposure.

- **High-risk:**
  Pharmacy services in the fever clinic or isolation wards. Exposure to aerosols and body fluids (including blood) of the suspected or confirmed patients with the 2019-nCoV infection.

- **Moderate-risk:**
  Direct contact with patients, such as physical examination when providing pharmaceutical care, patient's body fluid (including blood) contact and transfer.

- **Low-risk:**
  Indirect contact with patients, such as dispensing, medication consultations, pharmacy clinics, pharmaceutical care, drug delivery in wards, pharmacy intravenous admixture, management of drug, and etc.

6.2. Personal protective equipment (PPE)

Personal protective equipment may include medical protective masks, latex examination gloves, goggles, safety glasses, face shields, fluid resistant aprons, gown, coverall, fluid-resistant and impermeable gowns and coveralls, etc. PPE should meet international Standards. PPE should be replaced immediately when they are contaminated by patients' blood, body fluids, secretions, etc., and should be coped to meet with the requirements of Infection Prevention and Control Department in hospital.

6.3. PPE in different infectious exposure positions

- **High risk:**
  Gowns, coveralls, fluid-resistant and impermeable gowns and coveralls, medical protective masks, disposable work caps, goggles / face shields, respirators, double gloves, boots/ shoe covers, and hand hygiene.

- **Moderate risk:**
  Coveralls and gowns, medical protective masks, disposable work caps, goggles / face shields, gloves, and hand hygiene.

- **Low risk:**
  Coveralls or gowns, medical surgical masks, disposable work caps, and hand hygiene.
  Pharmacists should follow the PPE donning/doffing protocol strictly. Avoid leaving the contaminated area on PPE to prevent cross-infection in different work zones.

6.4. Management of work facilities and the environment

6.4.1. Management of work facilities

Drug delivery equipment and containers: The drug delivery equipment and containers in the isolation and non-isolation area must not be mixed. The transportation equipment and containers should be disinfected according to the requirements of the environment.

Paper prescriptions should be collected regularly, fumigated with formaldehyde, sterilized with and ethylene oxide and stored properly in a sealed container. The hospital or pharmacy should set up a special area for prescription storage.

6.4.2. Management of the environment

Environment: The pharmacy department shall perform disinfection of the working environment (see annex 1 and 2 for disinfections and sterilization). The pharmacy should keep the dispensing window clean and free of debris. During the epidemic, wipe and disinfect the dispensing window twice a day, or four times a day for the dispensing windows of the fever pharmacy and infectious disease pharmacy. 75% alcohol, a chlorine-containing disinfectant with chlorine concentration of 250mg/L -500mg/L or an effective disinfecting wipes can be used for the wiping.

6.5. Management for Patients using Pharmacy Services

6.5.1. Patient consultation:

Pharmacists who provide pharmacy services directly to patients shall ask patients about fever, respiratory symptoms, and the epidemiological history. If the 2019-nCoV infection is suspected, patients should be referred to a fever clinic immediately.

6.5.2. Patient education:

Pharmacists shall actively educate patients and accompanying persons to help them understand the knowledge of protection from 2019-nCov, and guide them to use medications properly, as well as avoiding unnecessary use of preventive medication. During the epidemic, non-face-to-face methods for patient education and medication consultation can be actively performed.

6.5.3. Humanistic care:

Pharmacy services should convey humanistic care by various means, such as providing encouraging words on the material of medication education. Pharmacists can encourage patients to maintain active attitudes to overcome the disease.

7. Guarantee of key drugs, facilities and equipment

7.1. Reference list of key therapeutic drugs and the guarantee of inventory

Aiming at the prevention and disease control of 2019 n-coronavirus infections, the pharmacy department of medical institutions should guarantee the supply of therapeutic drugs related to clinical diagnosis and treatment. With the help of Drug and Therapeutic Committees (DTC) in each health facility where available, establish the list based on the recommendations of MoPH and the demand of clinical diagnosis and treatment progress, and epidemic prevention and control.

7.2. Reference list of disinfectants and consumable and the guarantee of inventory

Aiming at the prevention and disease control of the 2019-nCoV infections, the pharmacy department of each medical institution shall negotiate with the infection prevention committee to determine the list of disinfection drugs, as shown in annex 1, and complete the disinfection and protection work of each department in time.

7.3. The list and management of key facilities and equipment

For the prevention and control of 2019 n-cCoV, the pharmacy department of medical institutions should develop a catalogue of equipment, facilities and personal protective equipment related to the epidemic prevention and control, as shown in annex 3. Equipment shall be provided with national qualification certificates, and qualified personnel shall be designated to operate and maintain the equipment in accordance with the standard operation process. Personal protective equipment shall be provided with national qualification certificates.

8. Cleaning and disinfection management

Because COVID-19 can be transmitted through droplets and contact, any areas of the hospital or pharmacy environment that may have been contaminated with the virus should be disinfected. Previous studies on SARS CoV and MERS-CoV suggest that SARS-CoV-2 is sensitive to ultraviolet radiation (UVC) and heat (56°C for 30 minutes) (Cinatl J Rabenau HF, 2005). Also, the following disinfectants could effectively inactivate SARS-CoV-2: ether, 75% ethanol, chlorine-containing disinfectants and chloroform. Chlorhexidine could not effectively inactivate SARS-CoV-2.

Kampf and collaborators have also concluded from the analysis of 22 studies that human coronaviruses such as Severe Acute Respiratory Syndrome (SARS) coronavirus, Middle East Respiratory Syndrome (MERS) coronavirus or endemic human coronaviruses (HCoV) can persist on inanimate surfaces like metal, glass or plastic for up to nine days, but can be efficiently inactivated by surface disinfection procedures (see annex 1 for reference list of disinfectants).

The guidance is aimed at limiting the survival of the virus in the environments. A relevant distinction this document establishes is between cleaning and disinfecting:

- **Cleaning** refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.
- **Disinfecting** refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection. (Centers for Disease Control and Prevention, 2020). See annex 1 for disinfecting.

8.1. Infection control: other precautions

1. In the hospitals, the pharmacy department and the hospital infection prevention committees should have close collaboration

2. Respiratory hygiene should be practised by all, especially ill persons, at all times. Respiratory hygiene refers to covering the mouth and nose during coughing or sneezing using medical masks, cloth masks, tissues or a flexed elbow, followed by hand hygiene.

3. Discard materials used to cover the mouth or nose or clean them appropriately after use (e.g. wash handkerchiefs using regular soap or detergent and water).

4. Avoid direct contact with bodily fluids, particularly oral or respiratory secretions, and stool. Use disposable gloves and eye protection to provide oral or respiratory care and when handling stool, urine and waste. Perform hand hygiene before and after removing gloves.

5. Gloves, tissues, masks and other waste generated by ill persons or in the care of ill persons should be placed in a lined container in the ill person's room before disposal with other household waste.

6. Avoid other types of possible exposure to ill persons or contaminated items in their immediate environment (e.g. avoid sharing toothbrushes, cigarettes, eating utensils, dishes, drinks, towels, washcloths or bed linen). Eating utensils and dishes should be cleaned with either soap or detergent and water after use and may be reused instead of being discarded. This also applies to goggles.

7. Clean and disinfect frequently touched surfaces such as bedside tables, bedframes, and other bedroom furniture daily with regular household disinfectant containing a diluted bleach solution (1 part bleach to 99 parts water).

8. Clean and disinfect bathroom and toilet surfaces at least once daily with regular household disinfectant containing a diluted bleach solution (1 part bleach to 99 parts water). Members of the public should perform hygiene properly and frequently, especially after using the toilet (putting the toilet lid down before flushing to avoid spreading germs). (Centre for Health Protection Hong Kong, 2020)

9. Clean clothes, bedclothes, bath and hand towels, etc. of ill persons using regular laundry soap and water or machine wash at 60–90°C with common household detergent, and dry thoroughly. Place contaminated linen into a laundry bag. Do not shake soiled laundry. Consider measures to ensure that waste is disposed of at a sanitary landfill, and not at an unmonitored open dump, wherever possible. Additional measures may be needed to prevent unhygienic reuse of gloves and masks, and to avoid direct contact of the skin and clothes with the contaminated materials.

10. Use disposable gloves, eye protection and protective clothing (e.g. plastic aprons) when cleaning or handling surfaces, clothing or linen soiled with bodily fluids. Perform hand hygiene before and after removing gloves. (World Health Organization, 2020)

8.2. Infection control: hand washing and hand rubbing

Pharmacies may play an important public health role by raising awareness about the importance of frequent and appropriate hand washing and by stocking or preparing alcohol-based hand sanitiser.

The WHO recommends that handrub formulations should have an alcohol content of 80% ethanol or 75% isopropyl alcohol.

8.3. How to prepare alcohol-based handrub formulations?

For detailed information on how to prepare handrub formulations, including calculation and formulation methods and a step-by-step guide for local producers, refer to the WHO's *Guide to Local Production* in annex 4.

The document is also available at: https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf

9. Use of masks:

9.1. Recommendations for the pharmacy staff and the public

Recent research has shown that infectious aerosols can persist in the air for up to three hours (Neeltje van Doremalen, 2020). Aerosol-generating procedures are most likely to occur in a medical care setting and include tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation and bronchoscopy (World Health Organization, 2020). In sneezing or coughing, despite the variety in size, large droplets comprise most of the total volume of expelled respiratory droplets, and these tend to quickly fall to the ground. However, sneezing and coughing could also produce aerosols small enough to linger in the air for some time and be inhaled by others. Nevertheless, this will be affected by a number of factors including gravity, the direction and strength of local airflows, temperature and relative humidity (which will affect both the size and mass of the droplets due to evaporation) (World Health Organization, 2009).

9.2. Recommendations for pharmacists and the pharmacy workforce

Considering that transmission has occurred from asymptomatic and/or pre-symptomatic individuals (Ruiyun Li, 2020) and the frequent contact that pharmacists and the pharmacy workforce have with the public (including infected individuals), **it is recommend to that pharmacy staff wear a face mask to protect themselves from infection, and to avoid further dissemination in case the pharmacy personnel becomes infected themselves.**

In any case, it is paramount that pharmacists and the pharmacy workforce further protect themselves from infection by keeping a safe distance of 1-2 metres from patients and members of the public, using the proper personal protective equipment and disinfecting any surfaces that may be touched by patients and members of the public.

The WHO recommends that health care workers should:

- Wear a medical mask when entering a room where patients suspected or confirmed of being infected with COVID-19 are admitted and in any situation of care provided to a suspected or confirmed case;
- Use a particulate respirator at least as protective as a US National Institute for Occupational Safety and Health (NIOSH)-certified N95, European Union (EU) standard FFP2, or equivalent, when performing aerosol- generating procedures such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation and bronchoscopy. (World Health Organization, 2020) – this later recommendation referring to healthcare professionals in hospital wards.

9.3. For pharmacists working in hospitals and healthcare facilities

In their advisory role on the appropriate and responsible use of pharmaceutical products to the staff of hospital wards, hospital pharmacists should be aware of the recommendations concerning masks and respirators.

The three key factors for a respirator to be effective:

1. The respirator must be put on correctly and worn during the exposure.
2. The respirator must fit snugly against the user's face to ensure that there are no gaps between the user's skin and respirator seal.
3. The respirator filter must capture more than 95% of the particles from the air that passes through it. (Centers for Disease Control and Prevention, 2020)

9.4. Use of a respirator

- Use a respirator that is at least as protective as a fit-tested NIOSH-certified disposable N95 filtering face piece respirator before entry into the patient room or care area.
- Disposable respirators should be removed and discarded after exiting the patient's room or care area and closing the door. Perform hand hygiene after discarding the respirator.
- If reusable respirators (e.g., powered air purifying respirator/PAPR) are used, they must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use.
- Respirator use must be in the context of a complete respiratory protection programme and trained in the proper use of respirators, safe removal and disposal, and medical contraindications to respirator use.

Additionally, and especially during pandemic periods, usual hygiene recommendations should be considered by pharmacists and the pharmacy workforce: short hair or tied-up hair and avoiding the use of jewellery, watches and make up all contribute to better infection prevention and a more efficient use of masks, respirators and goggles.

9.5. Recommendations for the public

It is recommended that members of the public wear a mask in the following circumstances:

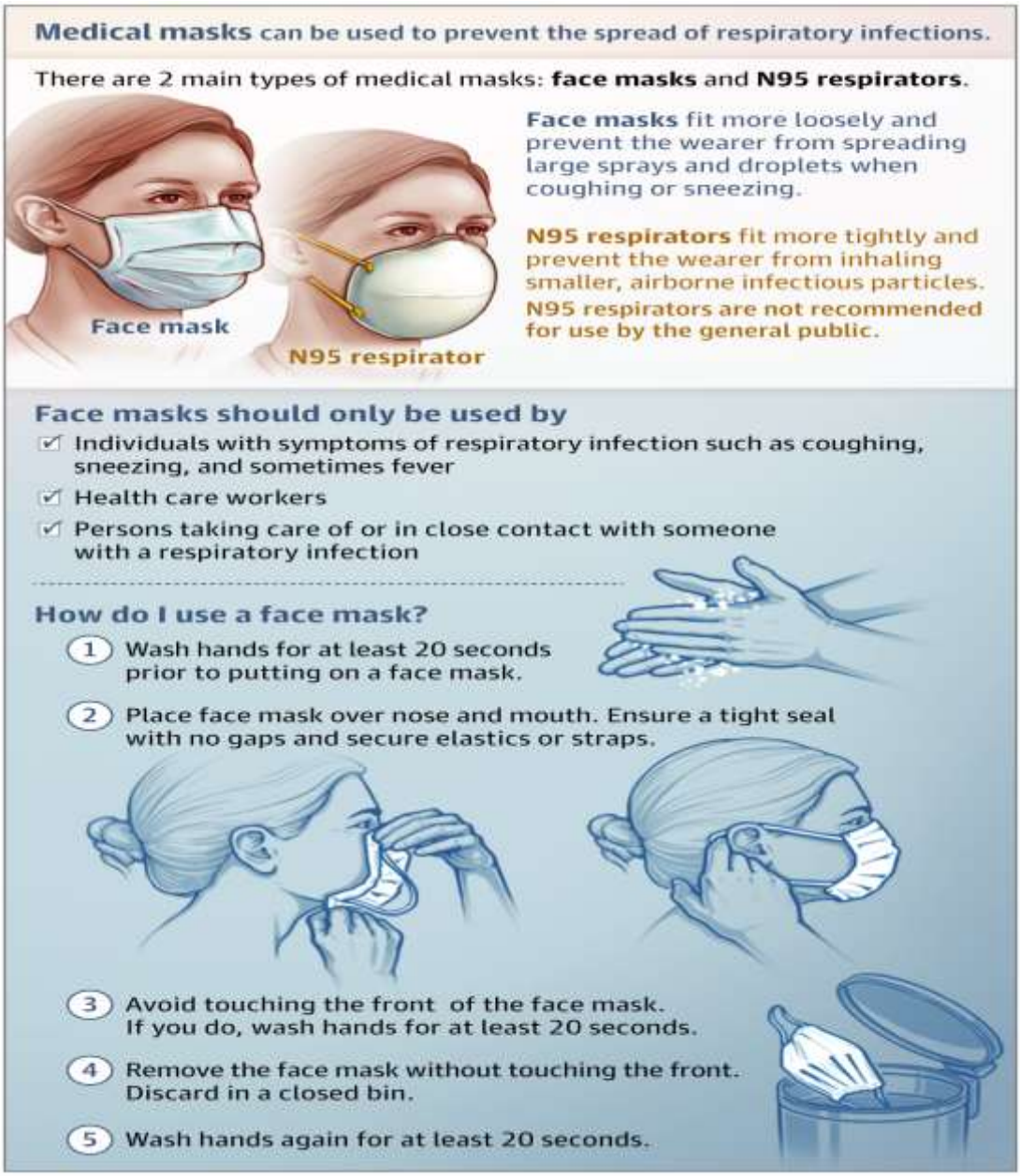
- When taking care of a person with suspected COVID-19 infection.
- When presenting symptoms such as coughing, sneezing or fever.
- If they belong to higher-risk groups, including older adults (particularly those older than 65 years) and people with underlying health conditions when out in public places or in the presence of others.
- When in quarantine (i.e., in preventive isolation following contact with a confirmed or potentially positive case of COVID-19), if they need to leave home for any reason, to prevent potential asymptomatic or pre-symptomatic transmission.

It should be noted that:

- Masks are effective only when used in combination with frequent hand-cleaning with alcohol-based hand rub or soap and water.
- If people wear a mask, then they must know how to use it and dispose of it properly. (World Health Organization, 2020)

9.6. How to put on, use, take off and dispose of a mask

1. Before touching the mask, clean hands with an alcohol-based hand rub or soap and water
2. Before putting on the mask, inspect it for tears and holes.
3. Orient which side is the top side (generally where the metal strip or stiff edge is).
4. Ensure the proper side of the mask (usually the colored side) faces outwards.
5. Place the mask onto your face. Pinch the metal strip or stiff edge of the mask so it molds to the shape of your nose.
6. Ensure the mask covers your mouth and chin.
7. After use, take off the mask; remove the elastic loops from behind the ears while keeping the mask away from your face and clothes. Avoid touching potentially contaminated surfaces of the mask.
8. Discard the mask in a closed bin immediately after use.
9. Perform hand hygiene after touching or discarding the mask. Use alcohol-based hand rub or, if they are visibly soiled, wash your hands with soap and water (World Health Organization, 2020). Also wash your face if possible.



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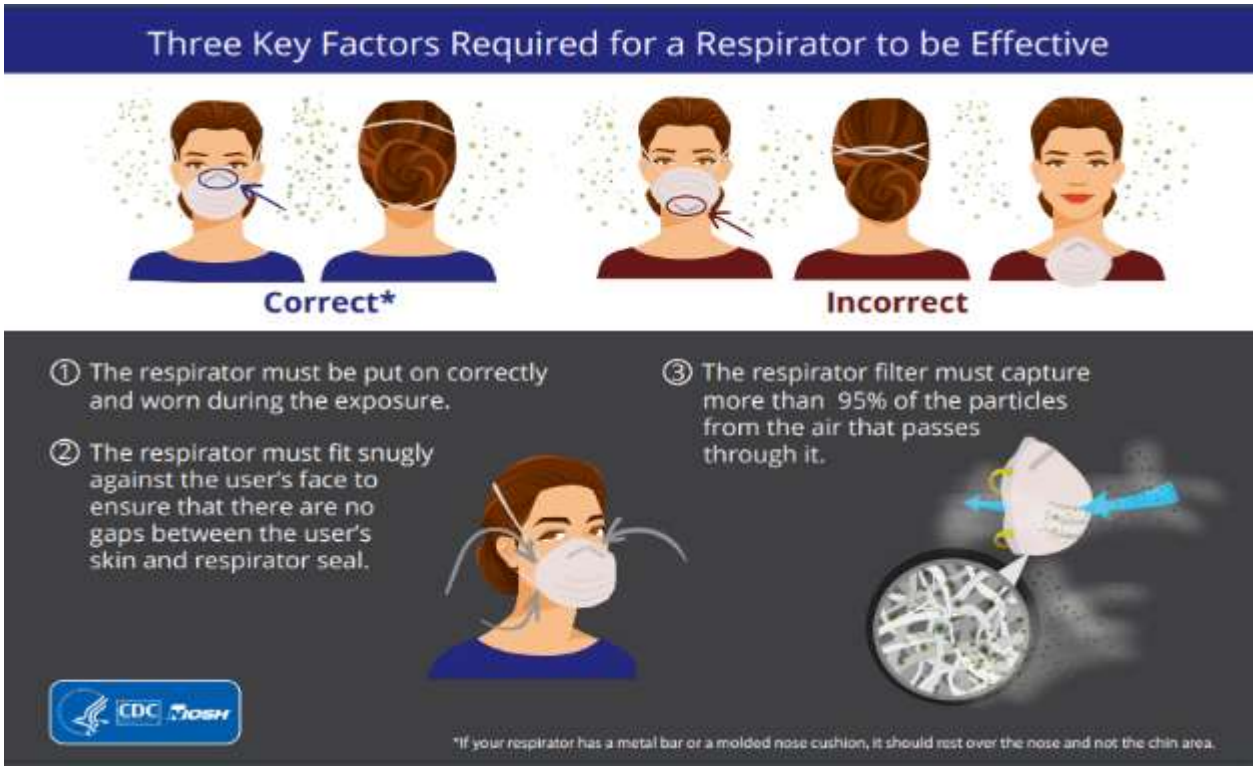

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https://blogs.cdc.gov/niosh-science-blog/2018/01/04/respirators-public-use/

9.7. Advice to the community

Individuals without respiratory symptoms should:

1. Avoid large gatherings and closed crowded spaces;
2. Maintain a distance of at least 1-2 metres from any individual with COVID-19 respiratory symptoms (e.g., coughing, sneezing) and any individual in general when there is community transmission of the disease;
3. Perform hand hygiene frequently, using alcohol-based hand rub if hands are not visibly soiled or soap and water when hands are visibly soiled;
4. If coughing or sneezing cover the nose and mouth with a flexed elbow or paper tissue, dispose of the tissue immediately after use and perform hand hygiene;
5. Refrain from touching the mouth, nose and eyes before washing their hands;
6. Avoid visiting elderly people in their homes or at nursing homes, as they are particularly vulnerable to COVID-19.

ANNEX 1: Viability of SARS-CoV-2 on aerosols and different surfaces, and list of disinfectants for commonly contaminated objects

Type of surface / aerosol	Viability	Half-life
Aerosols	Up to 3 hours	1.1-1.2 hours
Stainless steel	Up to 48-72 hours	5.6 hours
Cardboard/paper	Up to 24 hours	3.46 hours
Plastic	Up to 72 hours	6.8 hours
Copper	Up to 4 hours	0.7 hours

Source: (Neeltje van Doremalen, 2020)

The following list was compiled by the Chinese Pharmaceutical Association. For more details, consult the original document (in English), available on the FIP dedicated webpage. (Chinese Pharmaceutical Association, 2020)

Object for disinfection	Type of disinfectant	Consumables
Environmental object surface	Chlorine-containing disinfectant (1000mg/L), chlorine dioxide (500mg/L), 75% alcohol	Disposable absorbent material
Hands	Alcohol-containing quick-drying hand disinfectant, chlorine-containing disinfectant, hydrogen peroxide,	
Skin	0.5% iodine-based disinfectant, hydrogen peroxide	
Mucosa	0.05% iodine-based disinfectant	
Indoor air	Chlorine dioxide, hydrogen peroxide	
Pollutant	Chlorine-containing disinfectant (5000-20000mg/L), disinfectant powder or bleach powder containing water absorption	
Textiles such as clothes, bedding	Chlorine-containing disinfectant (500mg/L, ethylene oxide	
Prescriptions	Ethylene oxide	

ANNEX 2: Sterilization Management

Table 1: Common sterilization methods

Classification	Example	Sterilization methods*
Surface of items in public area	phone, computer keyboard, mouse, stationery, cash register, balance, table and chair, door handle, etc.	wipe the surface for sterilization with 75% alcohol
Medical instrument **	forehead thermometer, ear thermometer, etc.	wipe for sterilization with 75% alcohol after each use, and sterilize immediately if there is contamination
Large facilities	surfaces of large facilities such as air conditioners, shelves, counters, refrigerators, lockers, etc.	Wipe for sterilization with 500 mg/L chlorine-containing disinfectant once a day
Work clothes	work clothes, work pants, etc.	Sterilize twice a week (replace immediately when contaminated) by hot washing method, sterilize at 75℃ for more than 30min or at 80℃ for more than 10mins (the sterilization time can be extended according to the degree of dirt); Or with clothing disinfectant (250-500 mg/L chlorine-containing disinfectant can be used for white clothes) for 30 min, rinse with water repeatedly
Cleaning utensils	mop, rag, etc.	Should be dedicated to the special area, rinse with water after each use, soak and sterilize with 500 mg/L chlorine-containing disinfectant for 30min, rinse again with water and then dry

* The disinfectants and consumables used should meet the management requirements of the National Health Commission of the People's Republic of China.

** It is recommended that retail pharmacy during the epidemic should not provide services such as measuring blood pressure and blood sugar.

Table 2: Environmental sterilization methods

Classification	Example	Sterilization methods
Daily air sterilization	Strengthen air circulation	Window ventilation or mechanical ventilation for more than 30min twice a day
	Air sterilization	Circulating air sterilization equipment is used when poor air quality, no good ventilation, or when people are in the room
		When no air sterilization equipment, according to the "Specifications of cleaning and disinfecting for central air conditioning ventilation system in public buildings" (WS/T396-2012), regularly clean and sterilize the air conditioning and ventilation systems
	UV sterilization	Periodic UV sterilization for more than 30min once or twice a day when no one is in the room
	Spray sterilization	When no air sterilization equipment, 500 mg/L chlorine-containing disinfectant is sprayed to sterilize, the spray volume is 20-30 mL/m3, doors and windows should be closed during sterilization, ventilation should be done for more than 1h after sterilization
Sterilization of floors, walls, elevators, etc.	When there are visible pollutants, first use disposable absorbent materials to completely remove the pollutants before sterilization	
	• When there are no obvious pollutants, 500-1000 mg/L chlorine-containing disinfectant should be sprayed or wiped to sterilize, once or twice a day • The ground is sterilized first by spraying or wiping from outside to inside, and the spray volume is 200-300 mL/m2. After the indoor sterilization is completed, the spraying is repeated from inside to outside again	
Precautions	• Read the instructions carefully before use, and choose the sterilization method and time, and disinfectant concentration based on the actual use • Pay attention to personal protection when preparing for use, wear gloves and goggles as the disinfectant is toxic and irritating • Scrub with water after sterilization to prevent damage to the items due to the causticity of disinfectants • Cleaning tools, including mops and rags, should be dedicated to the special area, and reusable items soaked and disinfected with chlorine-containing disinfectant should be rinsed with water and kept dried • Chlorhexidine does not inactivate SARS-CoV-2	

Disinfectants Reserve Management

- Disinfectants should be stored in a special area, sealed, protected from light, ventilated, shaded, no vibration, and impact. It should be kept away from fire, heat sources, equipment that easily generates sparks, and should be kept out of the reach of children.
- Avoid using glass containers for storage, pay attention to whether the containers are damaged, and provide emergency equipment and containers for leakage.
- Alcohol and chlorine-containing disinfectants must be stored separately.
- Alcohol should be stored in a place equipped with firefighting equipment and facilities (such as sand, dry chemical fire extinguishers, spades, buckets, etc.).

ANNEX 3: List of key facilities, equipment and personal protective equipment of COVID-19 infections

This list was compiled by the Chinese Pharmaceutical Association. It is applicable particularly to hospital pharmacy settings. For more details, consult the original document (in English), available on the FIP dedicated webpage. (Chinese Pharmaceutical Association, 2020)

Classification		**Name**
Facilities	Essential	Isolated dispensing window
	Optional	Biological safety cabinet
Equipment	Essential	UVC Lamp
		Air steriliser
		Body temperature measuring equipment
		High-pressure steam steriliser
		Transfer box
	Optional	Intelligent distribution equipment
Personal protective equipment	Essential	Medical protective mask
		Disposable work cap
		Disposable gloves
		Coverall
	Optional	Medical surgical mask
		Medical protective mask (N95 mask or equivalent mask)
		Face shields
		Power-supply air-supply respirator with optional dust filter box or filter tank
		Goggles
		Long sleeve thick rubber gloves
		Work shoes
		Rubber boots
		Waterproof boot cover
		Disposable shoe cover
		Medical gown
		Waterproof apron
		Waterproof isolation gown

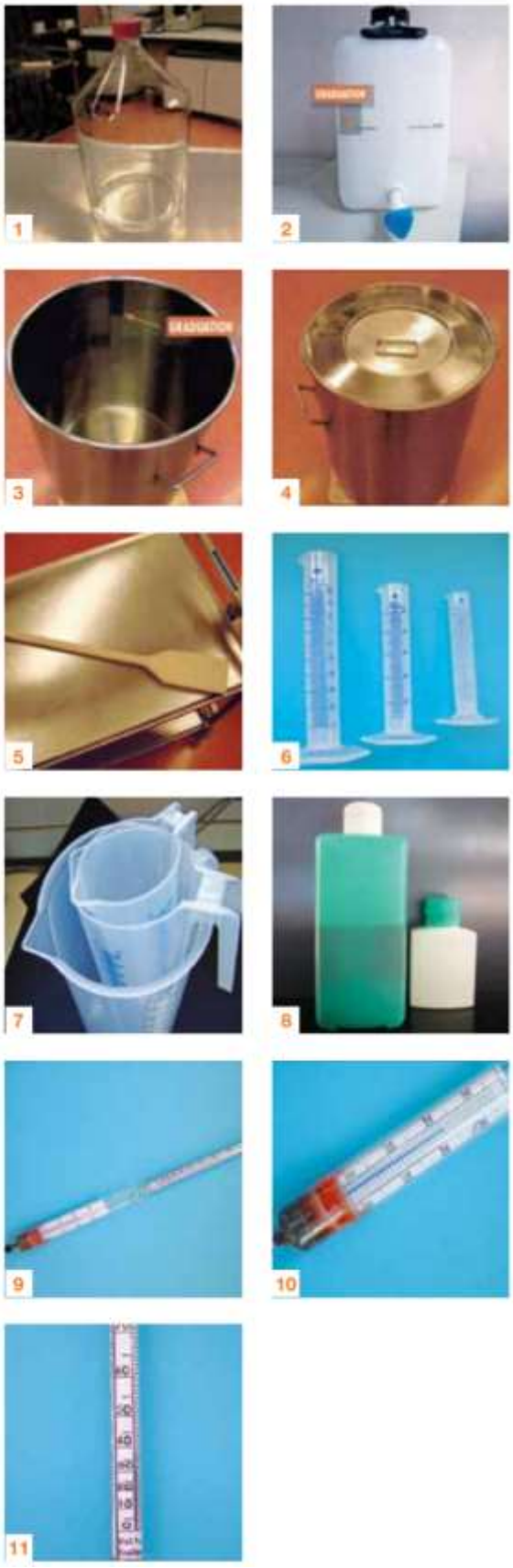
ANNEX 4: WHO guide to local production of handrub formulations

Source: Guide to Local Production: WHO-recommended Handrub Formulations (World Health Organization, 2010)

Materials required (small volume production)

REAGENTS FOR FORMULATION 1:	REAGENTS FOR FORMULATION 2:
• Ethanol 96% • Hydrogen peroxide 3% • Glycerol 98% • Sterile distilled or boiled cold water	• Isopropyl alcohol 99.8% • Hydrogen peroxide 3% • Glycerol 98% • Sterile distilled or boiled cold water

- 10-litre glass or plastic bottles with screw-threaded stoppers (1), or
- 50-litre plastic tanks (preferably in polypropylene or high density polyethylene, translucent so as to see the liquid level) (2), or
- Stainless steel tanks with a capacity of 80–100 liters (for mixing without overflowing) (3, 4)
- Wooden, plastic or metal paddles for mixing (5)
- Measuring cylinders and measuring jugs (6, 7)
- Plastic or metal funnel
- 100 ml plastic bottles with leak-proof tops (8)
- 500 ml glass or plastic bottles with screw tops (8)
- An alcohol meter: the temperature scale is at the bottom and the ethanol concentration (percentage v/v) at the top (9, 10, 11)



NOTE

- Glycerol: used as humectant, but other emollients may be used for skin care, provided that they are cheap, widely available and miscible in water and alcohol and do not add to toxicity or promote allergy.
- Hydrogen peroxide: used to inactivate contaminating bacterial spores in the solution and is not an active substance for hand antisepsis.
- Any further additive to both formulations should be clearly labelled and be non-toxic in case of accidental ingestion.
- A colorant may be added to allow differentiation from other fluids, but should not add to toxicity, promote allergy, or interfere with antimicrobial properties. The addition of perfumes or dyes is not recommended due to risk of allergic reactions.

METHOD: 10-LITRE PREPARATIONS (If you produce in lower or higher volumes, adjust the proportion of the reagents to the desired volume accordingly)

Ten-litre glass or plastic bottles with screw-threaded stoppers are suitable.

Recommended amounts of products:

FORMULATION 1	FORMULATION 2
• Ethanol 96%: 8333 ml • Hydrogen peroxide 3%: 417 ml • Glycerol 98%: 145 ml	• Isopropyl alcohol 99.8%: 7515 ml • Hydrogen peroxide 3%: 417 ml • Glycerol 98%: 145 ml

Step-by-step preparation:

1. The alcohol for the formula to be used is poured into the large bottle or tank up to the graduated mark.

2. Hydrogen peroxide is added using a measuring cylinder.

3. Glycerol is added using a measuring cylinder. As glycerol is very viscous and sticks to the wall of the measuring cylinder, it should be rinsed with some sterile distilled or cold boiled water and then emptied into the bottle/tank.

4. The bottle/tank is then topped up to the 10-litre mark with sterile distilled or cold boiled water.

5. The lid or the screw cap is placed on the tank/bottle as soon as possible after preparation, in order to prevent evaporation.

6. The solution is mixed by shaking gently where appropriate or by using a paddle.

7. Immediately divide the solution into its final containers (e.g. 500 or 100 ml plastic bottles), and place the bottles in quarantine for 72 hours before use. This allows time for any spores present in the alcohol or the new/reused bottles to be destroyed.

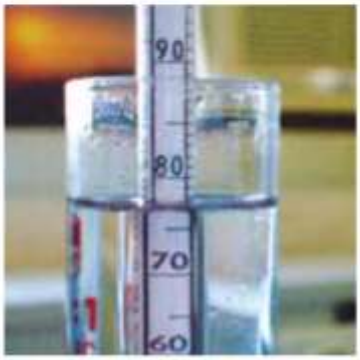
Final products

FORMULATION 1	FORMULATION 2
Final concentrations: • Ethanol 80% (v/v), • Glycerol 1.45% (v/v), • Hydrogen peroxide 0.125% (v/v)	Final concentrations: • Isopropyl alcohol 75% (v/v) • Glycerol 1.45% (v/v), • Hydrogen peroxide 0.125% (v/v)

Quality control

1. Pre-production analysis should be carried out every time an analysis certificate is not available to guarantee the titration of alcohol (i.e. local production). Verify the alcohol concentration with the alcohol meter and make the necessary adjustments in volume in the preparation formulation to obtain the final recommended concentration.

2. Post-production analysis is mandatory if either ethanol or an isopropanol solution is used. Use the alcohol meter to control the alcohol concentration of the final use solution. The accepted limits should be fixed to ± 5% of the target concentration (75%–85% for ethanol).



3. The alcohol meter shown in this information pamphlet is for use with ethanol; if used to control an isopropanol solution, a 75% solution will show 77% (± 1%) on the scale at 25°C.

General information

Labelling should be in accordance with national guidelines and should include the following:

- Name of institution
- WHO-recommended handrub formulation
- For external use only
- Avoid contact with eyes
- Keep out of the reach of children
- Date of production and batch number
- Use: Apply a palmful of alcohol-based handrub and cover all surfaces of the hands. Rub hands until dry
- Composition: ethanol or isopropanol, glycerol and hydrogen peroxide
- Flammable: keep away from flame and heat

Production and storage facilities:

- Production and storage facilities should ideally be air- conditioned or cool rooms. No naked flames or smoking should be permitted in these areas.

- WHO-recommended handrub formulations should not be produced in quantities exceeding 50 litres locally or in central pharmacies lacking specialised air conditioning and ventilation.

- Since undiluted ethanol is highly flammable and may ignite at temperatures as low as 10°C, production facilities should directly dilute it to the above-mentioned concentration. The flashpoints of ethanol 80% (v/v) and of isopropyl alcohol 75% (v/v) are 17.5°C and 19°C, respectively.

- National safety guidelines and local legal requirements must be adhered to the storage of ingredients and the final product.

ANNEX 5: Guidelines and protocols developed by MoPH on COVID-19:

For other guidelines on COVID-19 developed by MoPH, visit MoPH website using the following link:

https://moph.gov.af/dr/%D8%B1%D9%87%D9%86%D9%85%D9%88%D8%AF-%D9%87%D8%A7%DB%8C-%D9%88%D8%B2%D8%A7%D8%B1%D8%AA-%D8%B5%D8%AD%D8%AA-%D8%B9%D8%A7%D9%85%D9%87

A. Preventive guidelines:

شماره	رهنمود ها	لینک های داونلود
1	تعریف واقعه برای سرویلانس - ویروس جدید کرونا	برای دانلود اینجا کلیک کنید
2	رهنمود سکریننگ	برای دانلود اینجا کلیک کنید
3	چک لیست نظارتی از مراکز صحی	برای دانلود اینجا کلیک کنید
4	رهنمود وقایه از انتان در مراکز صحی و شفاخانه ها	برای دانلود اینجا کلیک کنید
5	رهنمود اهتمامات برای جنازه مریضانی که از سبب کرونا فوت کرده	برای دانلود اینجا کلیک کنید
6	استفاده درست از وسایل محافظت شخصی پی پی ای	برای دانلود اینجا کلیک کنید
7	رهنمود تهیه و استفاده مواد ضد عفونی	برای دانلود اینجا کلیک کنید
8	رهنمود تغذی در جریان شیوع ویروس کرونا	برای دانلود اینجا کلیک کنید
9	رهنمود قیود گشت و گذار در شهر ها	برای دانلود اینجا کلیک کنید
10	رهنمود برای موسسات دولتی و غیر دولتی	برای دانلود اینجا کلیک کنید
11	رهنمود برای ایستگاه های بس ها	برای دانلود اینجا کلیک کنید
12	رهنمود قرنطین خانگی	برای دانلود اینجا کلیک کنی

B. Therapeutic guidelines and protocols:

شماره	رهنمود ها و پروتوکول ها	لینک های داونلود
1	رهنمود مراقبت های تسکینی	برای دانلود اینجا کلیک کنید
2	رهنمود مدیریت واقعه ویروس کرونا	برای دانلود اینجا کلیک کنید
3	رهنمود عملیاتی برای مدیریت واقعه کوید-۱۹	برای دانلود اینجا کلیک کنید
4	پروتوکول استفاده منطقی وسایل محافظت شخصی برای کرونا ویروس_ حمل ۱۳۹۹	برای دانلود اینجا کلیک کنید
5	SOP for Crono Virus Sampling Dari 26 Jan 2020	برای دانلود اینجا کلیک کنید
6	Septic Shock protocol	برای دانلود اینجا کلیک کنید
7	SARI Protocol	برای دانلود اینجا کلیک کنید
8	ARDS protocol	برای دانلود اینجا کلیک کنید

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Validity

This document is prepared based on commonly accepted evidence using international references with regards to the nomenclature of the virus and the disease on 12 February 2020, and updated on April 16, 2020 according to newly available evidence.

Disclaimer

This document is based on the available evidence and the recommendations of reputable organisations such as the World Health Organization, the United States and the European Centres for Disease Control and Prevention, and others, as cited at the time of publishing. The available knowledge about COVID-19 is rapidly changing and such recommendations may change accordingly. We recommend consulting the websites of these organisations and any newly available evidence for the most recent updates.

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