



Date: 18 May 2020
Document Code: 02
Version: 03

Guidelines

Cleaning & Disinfection of Environmental Surfaces in wake of COVID-19

Objective

To provide guidelines regarding the ways of cleaning and disinfecting various environmental surfaces. in both health care & non-health care settings to help slow person-to-person transmission of COVID-19

Rationale

As the virus can survive on surfaces of different materials for at least 2 to 3 days, surfaces potentially contaminated with the COVID-19 virus (e.g. commonly touched surfaces, surfaces which may have been exposed to respiratory droplets such as sneezes or coughs, and floors) should be sanitized. Routine cleaning of surfaces using appropriate cleaning and disinfection methods can help prevent the spread of COVID-19. Non-health care settings should be especially careful to routinely clean and disinfect surfaces.

Similarly, surfaces in the environment of the patient can get contaminated with the pathogenic microorganisms by contact with the body or body secretions, from particles shed from the skin or clothes or transportation through goods, shoes, wheels or wind. This contamination may result in colonization of various surfaces in the environment of the healthcare facilities. It is therefore prudent to develop procedures of and make necessary arrangements for periodic cleaning and where necessary, disinfection of these structures.

Definitions

Fumigation or fogging is a procedure that results in release of vapors or mist of an antimicrobial agent in the air in a closed or open space.

Antimicrobial agent is a substance that has the property to kill microorganisms.

Cleaning is the removal of visible soil (organic and inorganic materials) from objects and surfaces and is generally accomplished manually or mechanically using water with detergents or enzymatic products.

Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects.

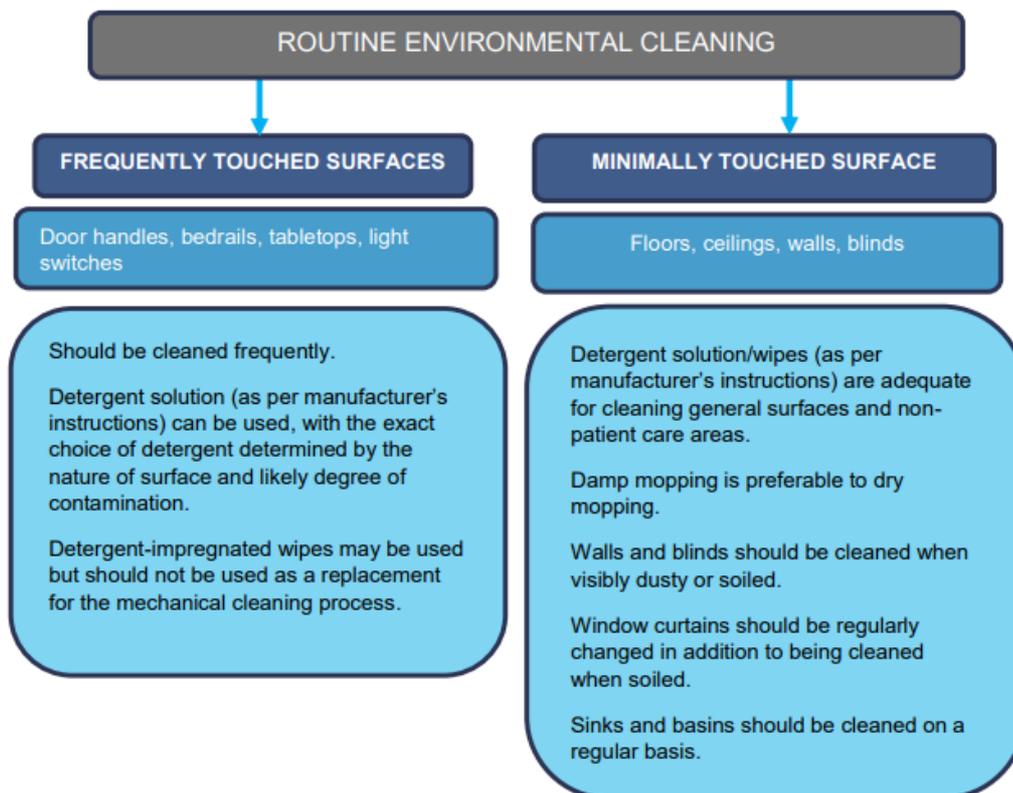
Non-critical items are those that come in contact with intact skin but not mucous membranes. Blood pressure apparatus and door knobs are examples of non-critical items.

Routine Environmental cleaning in Non-health setting

The length of time that SARS-COV-2 (the cause of COVID-19) survives on inanimate surfaces will vary depending on factors such as the amount of contaminated body fluid e.g. respiratory droplets present, environmental temperature and humidity. (Refer Annex A below).

In general, coronaviruses are unlikely to survive for long once droplets produced by coughing or sneezing dry out. It is good practice to routinely clean surfaces as follows:

- Clean frequently touched surfaces with detergent solution (Refer diagram below)
- Clean general surfaces and fittings when visibly soiled and immediately after any spillage.



- At a school, daycare center, office, or other facility that does not house people overnight:
 - Close off areas visited by the ill persons
 - Open outside doors and windows and use ventilating fans to increase air circulation in the area. Wait 24 hours or as long as practical before beginning cleaning and disinfection
 - Cleaning staff should clean and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment (like tablets, touch screens, keyboards, remote controls, and ATM machines) used by the ill persons, focusing especially on frequently touched surfaces



Routine Environmental cleaning Health-care setting

Recommended frequency of cleaning of environmental surfaces, according to the patient areas with suspected or confirmed COVID-19 patients. ¹

Location	Frequency	Additional guidance
Screening/triage area	At least twice daily	<ul style="list-style-type: none"> • Focus on high-touch surfaces, then floors (last)
Inpatient rooms / cohort – occupied	At least twice daily, preferably three times daily, in particular for high-touch surfaces	<ul style="list-style-type: none"> • Focus on high-touch surfaces, starting with shared/common surfaces, then move to each patient bed; use new cloth for each bed if possible; then floors (last)
Inpatient rooms – unoccupied (terminal cleaning)	Upon discharge/transfer	<ul style="list-style-type: none"> • Low-touch surfaces, high-touch surfaces, floors (in that order); waste and linens removed, bed thoroughly cleaned and disinfected
Outpatient / ambulatory care rooms	After each patient visit (in particular for high-touch surfaces) and at least once daily terminal clean	<ul style="list-style-type: none"> • High-touch surfaces to be disinfected after each patient visit • Once daily low-touch surfaces, high-touch surfaces, floors (in that order); waste and linens removed, examination bed thoroughly cleaned and disinfected
Hallways / corridors	At least twice daily b	<ul style="list-style-type: none"> • High-touch surfaces including railings and equipment in hallways, then floors (last)
Patient bathrooms/ toilets	Private patient room toilet: at least twice daily Shared toilets: at least three times daily	<ul style="list-style-type: none"> • High-touch surfaces, including door handles, light switches, counters, faucets, then sink bowls, then toilets and finally floor (in that order) • Avoid sharing toilets between staff and patients

Products for Environmental cleaning and disinfection

The preference of affinity of the chemical disinfectants, recommended concentration, surfaces to be tackled, toxicity, contact time, frequency, duration and stability of the product should be according to the focused microorganisms.

- 70% Alcohol can be used to wipe down surfaces where the use of bleach is not suitable, e.g. metal. (Chloroxyleneol (4.5-5.5%)/ Benzalkonium Chloride or any other disinfectants found to be effective against coronavirus may be used as per manufacturer's instructions)
- Always use freshly prepared 1% sodium hypochlorite

List of Recommended disinfectants are attached in Annex-B

¹ Cleaning and disinfection of environmental surfaces in the context of COVID-19



Spraying disinfectants

As recommended by World Health Organization, spraying individuals with disinfectants is not suggested under any circumstances. This could be physically and psychologically harmful and would not reduce an infected person's ability to spread the corona virus through droplets or contact. Spraying chlorine or other toxic chemicals on people can cause eye and skin irritation, bronchospasm and gastrointestinal effects.

Spraying or fumigation of outdoor spaces, such as streets or marketplaces has not been proved to kill the COVID-19 virus or other pathogens because disinfectant is inactivated by dirt and debris. Even in the absence of organic matter, chemical spraying is unlikely to adequately cover all surfaces for the duration of the required contact time needed to inactivate pathogens.

Note: The above recommendations are being regularly reviewed by the Ministry of National Health Services, Regulations & Coordination and will be updated based on the international & national recommendations and best practices.

The Ministry acknowledges the contribution of Dr.Saira Kanwal, Irfan Mirza, and HSA/ HPSIU/ NIH team to compile these guidelines.

References:

1. Disinfection and Sterilization: An Overview. Rutala, William A et al, American Journal of Infection Control, 2013, 41:5, S2-S5
2. Guidelines for environmental infection Control in Health-Care Facilities. Recommendations of CDC and Health-Care Infection Control Practices Advisory Committee (HICPAC), 2003 (Updated July 2019)
3. Interim Guidelines for Environmental Cleaning and Disinfection of Areas Exposed to Confirmed Case(s) of COVID-19 in Non-Healthcare Premises
4. COVID-19: General Guidance for Cleaning and Disinfecting for Non-Health Care Setting-NYC health
5. Cleaning and disinfection of environmental surfaces in the context of COVID-19- Interim guidance-WHO

For more information, please contact:

HSA/ HPSIU/ NIH, PM National Health Complex, Islamabad

<http://covid.gov.pk/>

<http://nhsrsrc.gov.pk/>

<https://www.facebook.com/NHSRCSOfficial>

<http://www.hsa.edu.pk/>

<https://twitter.com/nhsrcofficial>

<https://www.nih.org.pk/>

https://www.youtube.com/channel/UCdYuzeSP4Ug1f_ZZ



Viability of COVID19 in different environmental conditions

According to the Centers for Disease Control and Prevention, the coronavirus is usually transmitted through respiratory droplets (from an infected person sneezing or coughing) rather than through fomites, objects and materials that when contaminated can transfer disease.

1. Surfaces

Surface	Viability Duration	Source
Plastic and stainless steel	2-3 days	https://www.businessinsider.com/study-how-long-coronavirus-lasts-on-surfaces-stainless-steel-plastic-2020-3?amp
Copper surfaces	4 hours	
Cardboard	24 hours	
Air Droplets	3-4 hours	https://www.niaid.nih.gov/news-events/new-coronavirus-stable-hours-surfaces Published in New England Journal of Medicine
Surgical Mask (outer layer)	7 days	Stability of SARS-CoV-2 in different environmental conditions, School of Public Health, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong Special Administrative Region, China.
Printing Paper & Tissue paper	3 hours	
Duration of the virus depends on fabric of the clothing	2 hours to few days	https://www.reviewed.com/laundry/features/can-the-covid-19-coronavirus-live-on-your-clothes

2. Temperature

The virus was diluted by virus transport medium (VTM; final concentration: 6.7 log *TCID50/mL) was incubated for up to 14 days		
Temperature	Duration	Unit log reduction in TCID
Highly stable-4°C	Extended Period	0.6-unit log reduction
22°C	7 Day 14 day	3-log unit reduction No virus detected
37°C	24 Hours After 24 hours	3-log unit reduction No virus detected
56°C	30 minutes	No virus detected
70°C	5 minutes	No virus detected

*TCID: Tissue culture infectious dose

As covid19 is a lipid containing virus, it can be killed with wipes. Copper surfaces tend to kill virus in 4 hours, while disinfecting surface with 62-71% alcohol or 5% hydrogen peroxide bleach kills virus within a minute.



Annex 'B'

List of Recommended Disinfectants

Sr. No	Active Ingredient	Product Name	Target Virus (es)	Application	Contact Time	Formulation Tips
1.	Chlorine	Khlorsept 17 (org.chlorine) clorox		Spray, CF, ULV, moping & wiping	4 Min	Dilutable
2.	Quaternary ammonia	Virocid	Coronavirus	Spray, fogging, Foaming	10 Min	Dilutable
3.	Mycide GA	Protecol GA	Coronavirus	Spray, Cold F, Cleaning	4 Min	Ready-To-Use (RTU)
4.	Hydrogen peroxide (peroxyacetic acid)	Maguard 5626	Coronavirus	Spraying , mop- ping and wiping	10 Min	Dilutable
5.	Hydrogen peroxide (peroxyacetic acid)	Maguard 1522	Coronavirus	Spraying , mop- ping and wiping	10 Min	Dilutable
6.	Quaternary ammonia (Isopropyl)	Disc Discide Ultra Dis. spray	Coronavirus	Spray, Cold F, Foaming etc	30 Sec	Ready-To-Use (RTU)
7.	Quaternary ammonia (ethanol)	Asepticare	Coronavirus	Spray, CF, ULV, moping & wiping	2 Min	Ready-To-Use (RTU)
8.	Sodium Hyperchlorite	CPPC Ultra Bleach 2	Coronavirus	Spray, CF, ULV, moping & wiping	2 Min	Dilutable
9.	Sodium Chlorite (dischlorois dihydrate)	Aseptrol S 10-Tab	Coronavirus	Spray, CF, ULV, moping & wiping	10 Min	Solid
10.	Sodium Hyperchlorite	Pure Ultra Bleach	Coronavirus	Spraying and wiping	5 Min	Dilutable
11.	Sodium Hyperchlorite	Disinfecting Spray with bleach	Coronavirus	Spraying, ULV and wiping	1 Min	Ready-To-Use (RTU)
12.	Quaternary ammonia	512 Sanitizer	Coronavirus	Sanitizer	10 Min	Dilutable

