RapidInfo4U
Healthcare Repository
Rapid Evidence Search and Summary

Question submitted to RapidInfo4U

1. What is current guidance for cleaning a room after a hands-on physiotherapy session?
2. What are the current recommended products for effectively cleaning surfaces?
3. Do I have to wait a certain amount of time to clean my treatment room after a session?

Answer

1. Clean with detergent and water followed by rinsing and drying. If a surface is suspected or known to have been contaminated by infectious material a disinfected should be used *after* cleaning.
2. A neutral detergent with water for cleaning and a chlorine-based product, such as sodium hypochlorite, for disinfecting.
3. HSPC cleaning protocols do not stipulate that a certain amount of time should be left between seeing a patient and cleaning. HSPC guidelines state that COVID-19 virus droplets produced by an infected patient will land on surfaces "within minutes" of production. They do not state how many minutes precisely. Research has found that large droplets fall within 1 second while smaller droplets can take up to 9 minutes to fall to the ground.

Long Answer

Routine cleaning

The HSE Health Protection Surveillance Centre (HPSC) states that routine cleaning with detergent and water followed by rinsing and drying is the most useful method for removing microorganisms from surfaces [1]. Detergents help to lift dirt and microorganisms so that they can be rinsed away with clean water. Scrubbing a surface physically reduces the number of microorganisms on the surface. Rinsing with clean water removes the loosened microorganisms and any detergent residue from the surface. Drying the surface makes it harder for microorganisms to survive or grow [1]. Cleaning should always start from the cleanest area and move to the most soiled area [2].

Disinfectants

HSE Health Protection Surveillance Centre (HPSC)

The HSPC recommends a chlorine-based product, such as sodium hypochlorite, for disinfecting [1]. To kill microorganisms any disinfectant must [1]:

- Have enough time in contact with the surface to kill the microorganisms (as per the manufacturer's instructions)
- Be used at the right concentration
- Be effective against those particular microorganisms of concern
- Be applied to a clean surface. Therefore using a disinfectant must involve either:
    a) 2-steps clean: a physical clean using a detergent followed by disinfection
    b) 2-in-one clean: a physical clean using a combined detergent and disinfectant

The World Health Organisation (WHO)

The WHO recommends the following disinfectants and defined concentrations for COVID-19 infection prevention and control [2]:

1. Ethanol 70-90%
2. Chlorine-based products (e.g., hypochlorite) at 0.1% (1000 ppm) for general environmental disinfection or 0.5% (5000 ppm) for blood and body fluids large spills
3. Hydrogen peroxide >0.5%

Contact time of a minimum of 1 minute is recommended for these disinfectants or as recommended by the manufacturers [2].

When to use Disinfectants

The HSE HSPC guidelines state that disinfectants are usually only necessary if a surface is suspected or known to have been contaminated by infectious material including blood and other body fluids [1]. The HSE HSPC guidance for General Practice states [2, p. 9]:

1. When a patient is diagnosed in the practice with a suspected transmissible disease for example COVID-19, measles, Influenza, it is recommended that routine cleaning is

intensified and the use of a neutral detergent solution is followed by the use of a disinfectant so that surfaces are cleaned and disinfected.

2. Surfaces in the clinical room that are touched by the patient, patient's body fluids or by staff should be cleaned and disinfected if necessary between patients.

How long does COVID-19 stay in the air?

When an infected person talks, breathes, coughs, or sneezes they spread viral particles. Such viral particles are in globs of mucus, saliva, and water [1, 4, 5]. How these globs behave depends on their size. Bigger globs fall and land on surfaces in the form of droplets within minutes [1, 4, 7]. Smaller globs evaporate in the form of aerosols. Aerosols can linger in the air and float further away than a droplet would fall [4]. However, while aerosols potentially travel further than droplets it has been proven that the virus in aerosols can dilute and become inactive as it lingers in the air, and there is no evidence that they are infectious [4, 5, 6].

The difference between a droplet and an aerosol is size: droplets are bigger. However, there is disagreement in the scientific community about how much bigger. The World Health Organization (WHO) states particles greater than 5 µm are droplets, and those smaller than 5 µm are aerosols. Other researchers use 10 µm and 20 µm as the cut-off size [4,5].

Early COVID-19 research focused on how droplets transmit the virus but now there is a move to try to understand the transmission of COVID-19 through aerosols [4]. The spread of COVID-19 droplets and aerosols is impacted by micro-climatic conditions in individual spaces. Understanding how COVID-19 particles move has been described as "profoundly complex" and is poorly understood [4]. An article published in *The Lancet: Respiratory Medicine* analysed respiratory droplet size distribution, travel speed and distance [7]. They used healthy volunteers and found large droplets (100–1000 µm in diameter) and small droplets (1–10 µm). The large droplets (typically 500 µm in diameter) fell to the ground within 1 second. They extrapolate that small droplets (typically 5 µm in diameter) will fall to the ground within 9 minutes. This study reports that good ventilation of spaces substantially reduces the airborne time of droplets [7].

Current guidelines

In line with global guidelines, the HSE HPSC recommends that all healthcare environments implement *droplet precautions* for COVID-19 [1]. They do not recommend implementing airborne precautions to manage COVID-19. The HSE HPSC states that COVID-19 droplets (defined as greater than 5 µm) fall to surfaces "within minutes" of production [1, p.28]. They do not state how many minutes precisely and do not stipulate that a certain amount of time should be left between seeing a patient and cleaning.

Conclusion

Current HPSC guidance for cleaning a room after a hands-on physiotherapy session is to clean with detergent and water followed by rinsing and drying. If a surface is suspected or known to have been contaminated by infectious material a disinfectant should be used *after* cleaning. The guidance does not stipulate that a certain amount of time should be left between seeing a patient and cleaning. The HSE HPSC states that COVID-19 droplets fall to surfaces within minutes, with some research reporting that this can take up 9 minutes. The current recommended products for effectively cleaning surfaces are a neutral detergent with water for cleaning and a chlorine-based product, such as sodium hypochlorite, for disinfecting. Disinfectants should be in contact with the surface for a minimum of 1 minute, or as stated on the manufactures instructions to kill the virus.

RapidInfo4U
Healthcare Repository
Rapid Evidence Search and Summary

Rapid Evidence Search & Summary (RESS)

Our team of multidisciplinary researchers and clinicians in conjunction with the University of Limerick Library and Information Services have developed a detailed protocol for conducting a Rapid Evidence Search & Summary (RESS) to answer questions submitted to RapidInfo4U. Our RESS protocol uses PICO or PEO methods to refine your question and follows a detailed search procedure capturing guidance documents from governments, institutions and professional bodies; searching clinical and COVID specific repositories; and identifying the most recent reviews and RCTs in the scientific literature using established databases.

References

1. Health Protection Surveillance Centre (2020). *Interim Guidance on Infection Prevention and Control for the Health Service Executive 2020 v1.2*. HSE: September 2020. https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/infectionpreventionandcontrolguidance/hseinfectionpreventionandcontrolguidanceandframework/Interim%20HSE%20Guidance%20on%20IPC.pdf
2. World Health Organisation (2020). *Cleaning and disinfection of environmental surfaces in the context of COVID-19.* WHO: May 2020. https://www.who.int/publications/i/item/cleaning-and-disinfection-of-environmental-surfaces-inthe-context-of-covid-19
3. Health Protection Surveillance Centre (2020). *Guiding principles for Infection Prevention and Control when returning to routine General Practice during pandemic COVID-19 v2.1*. HSE: July 2020. https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/primarycareguidance/adviceriskassessmentandmanagementofpatients/Guiding%20principles%20IPC%20GP.pdf
4. Jayaweera, M., Perera, H., Gunawardana, B., & Manatunge, J. (2020). Transmission of COVID-19 virus by droplets and aerosols: A critical review on the unresolved dichotomy. Environmental Research, 109819. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7293495/#bib73
5. World Health Organization (2020). *Transmission of SARS-CoV-2: implications for infection prevention precautions: scientific brief.* WHO: July 2020. https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions
6. Wiersinga, W. J., Rhodes, A., Cheng, A. C., Peacock, S. J., & Prescott, H. C. (2020). *Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19): a Review*. JAMA, 324(8), 782-793. https://jamanetwork-com.proxy.lib.ul.ie/journals/jama/fullarticle/2768391

7. Somsen, G. A., van Rijn, C., Kooij, S., Bem, R. A., & Bonn, D. (2020). *Small droplet aerosols in poorly ventilated spaces and SARS-CoV-2 transmission.* The Lancet: Respiratory Medicine. https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(20)30245-9/fulltext#articleInformation