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Multidisciplinary Collaboration in Infection Control: The Role of Health Practitioners in Achieving Comprehensive Infection Control

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Abstract

Infections related to healthcare (HAI) are a serious public health issue that have an effect on quality of life, morbidity, and mortality. They also pose a significant financial strain on global health systems. On the other hand, a significant fraction of HAI can be avoided by using efficient infection prevention and control (IPC) strategies. Antimicrobial resistance must be successfully contained, and healthcare-associated infections (HAIs) must be prevented, particularly outbreaks of highly transmissible diseases, by providing high-quality treatment in the framework of universal health coverage. Enhancements in IPC are critical, both nationally and within facilities. The World Health Organization (WHO), cognizant of the lack of IPC standards and guidelines, decided to give global recommendations on the critical components of effective IPC programmes at the national and acute care facility levels top priority. These recommendations are based on systematic literature reviews and expert consensus.

The aim of the study is to ensure safe and effective infection prevention and control practices.

Keywords*: Multidisciplinary, Infection, Control, Health Practitioners..*

Introduction

All health systems must include infection prevention and control (IPC) since it is essential to both the health and safety of those who provide healthcare and those who receive it. Health care-associated infections (HAI) represent a significant public health concern due to their widespread detrimental effects on patient care, as well as their endemic burden and pandemic potential. According to data released by the World Health Organization (WHO) in 2011, the incidence of healthcare-associated infections (HAIs) is 7% in affluent nations and 15% in low- and middle-income countries (LMICs) at any given moment. The associated mortality rate is predicted to be 10%. In low- and middle-income countries

(LMICs), the prevalence of healthcare-associated infections (HAI) is much greater and mostly affects high-risk groups, such as patients admitted to intensive care units and newborn units, where the frequency of HAI is two to 20 times higher than in high-income countries, particularly for device-associated infections [1].

The practice of healthcare is very dynamic, ad hoc, diverse, and heavily reliant on dispersed human collaboration. Up to thirty interdisciplinary teams of doctors, nurses, midwives, dentists, physiotherapists, social workers, psychiatrists, nutritionists, chemists, administrative assistants and managers may collaborate in primary care. Moreover, primary care is patient-centered, meaning that the specialties of the experts who treat a patient, as well as the division of their responsibilities (such as team leader), vary based on the needs of the patient. It has been seen that teamwork improves patient outcomes for patients with diabetes, anxiety, depression, and other illnesses. This is why delivering integrated patient-centered care is so important. Much study has been done on interdisciplinary collaboration in primary care, but it's still unknown how practitioners in different fields and specializations work in practice [2].

A group of specialists from two or more disciplines working together on a single project, either simultaneously or separately, is called a multidisciplinary team. When it comes to healthcare, "collaboration" refers to the capacity to work together to solve issues, delegate decision-making authority, and carry out a treatment plan while pursuing a shared goal. The development of a collaborative action that tackles the complexity of patient requirements and the day-to-day dynamics of the team, which foster mutual respect and trust and assist integrate the perspectives of all professionals, have been highlighted as the two essential components. Home visits, joint care, computer-mediated interactions, and telemedicine consultations are a few examples of these dynamics [2].

A physician with training in infectious diseases (ID), a chemist with ID training, an IP nurse, and a unit nurse champion comprises the multidisciplinary infection prevention (IP) team. This crew rotates across various ICUs on a daily basis, following a weekly plan that is specific to each unit. In order to assess potential infection prevention and antimicrobial stewardship actions, each patient is assessed during rounds via the electronic medical record and through discussion with the bedside nurse. The goals are to ensure that isolation precautions are taken appropriately, cut down on superfluous lines and devices, and increase the usage of antibiotics. In appropriate cases, recommendations are made to the primary physician after being discussed with the bedside nurse. The Infectious Diseases Consultation Service may also be consulted for additional evaluation in cases where patients have complex, suspected infectious processes [3].

One of the most important aspects of providing safe and excellent services at the facility level is infection prevention, which is the process of erecting a barrier between the germs and the susceptible host. Hence, infection prevention measures like good hand hygiene might reduce the morbidity and death linked to HAIs. In order to prevent infections, standard precautions such as safety injections, contact, droplet, and airborne isolation precautions, patient bathing, antibiotic stewardship, vaccinations, thorough unit-based safety programmes, and surveillance were used as the primary measures. Real-time surveillance data enables infection control professionals to recognize and comprehend significant nosocomial illnesses as well as identify epidemics or outbreaks [4].

Literature review

Since there is no agreement on the definition and solution of the problem, there are several stakeholders involved, each with their own set of requirements and values, and the problem-solving process lacks a defined end point, infection prevention and control might be considered a wicked public health challenge [5].

Putting in place suitable hygiene practices is a crucial first step in stopping the spread of infection. Clinical staff members and nurses must practice prevention during procedures. The responsibility for infection prevention and control (IPC) lies with specially qualified personnel, such as infection control physicians and infection control nurses (ICNs). Infection control link nurses (ICLNs), or liaisons for ICNs among nurses providing direct patient care, were attempted to be established in order to bridge this gap and reinforce IPC procedures where necessary [6].

Healthcare-associated infections (HCAIs) are diseases individuals get while receiving treatment for other illnesses. These infections can be acquired in hospitals, acute care clinics, community health centers, and assisted living homes. Acute care hospitals are common places for HCCAIs, which affect 7–10% of patients globally. They also happen in many care environments, including long-term care institutions (nursing homes and rehabilitation centers), outpatient clinics, ambulatory surgery centers, and outpatient dialysis centers [7].

An essential component of HCAI prevention in hospitals is the presence of dedicated infection control departments staffed by professionals. The infection control team (ICT) is often responsible for implementing infection control recommendations in order to avoid healthcare-associated infections (HCAIs). The development and dissemination of guidelines and policies, the coordination of ongoing education and training, the establishment of systems for the surveillance of healthcare-associated infections (HCAIs), the monitoring and auditing of care practices and standards, and the creation of strong connections with other staff members and departments are just a few of the many vital roles that an ICT plays in infection control [7].

The key players in ICT include doctors, epidemiologists, microbiologists, and nurses, also referred to as infection control nurses (ICNs).These days, the ICT system has grown to encompass new positions like infection control champions and infection control link nurses (ICLNs). Infection control champions and ICLNs are ward-based employees who serve as a liaison between the ICT and their respective clinical wards while working under the direction of ICNs [7].

Each and every healthcare professional is essential to reducing the chance of cross contamination. Practitioners of infection prevention and control (IPC) are essential to helping organizations improve staff engagement because they possess the necessary skills and competences. IPC practitioners are skilled in clinical practice, teaching, research, and leadership. These abilities guarantee that patients receive high-quality treatment and promote staff engagement tactics. This essay emphasizes how enhancing staff involvement and reducing infection depend on the abilities and competencies of IPC practitioners. Positive outcomes for patients and staff are produced by engaged staff, and this is something that all healthcare organizations are happy to see [8].

Practitioners of infection prevention and control (IPC) are part of the multidisciplinary health and social care team, and they operate independently as well as collaboratively. Proficient IPC practitioners possess a broad range of expertise, encompassing comprehension of immunology, epidemiology, and microbiology, in addition to operational practice and organizational strategy. Junior employees might not be familiar with IPC procedures, and it will take them some time to become competent in this area. It is crucial to emphasize that advanced nurses' competencies by themselves do not increase staff engagement; a variety of factors, including actions taken by the organization, decisions made by line managers, and reactions from individuals, all play a role in how engaged a worker is [9].

Roles of Healthcare Epidemiology and Infection Control

In order to safeguard patients and healthcare personnel, practitioners and departments involved in healthcare epidemiology and infection control are coming under more and more scrutiny. The Joint Commission patient safety goals, government accountability,

headlines in the lay press, and mandated public reporting of diseases linked to healthcare are all contributing to the increased visibility of our field. We are being urged to work harder in light of the public scrutiny to keep an eye on unfavorable events related to medical care, to intervene and stop the spread of infections, to modify the behavior of healthcare professionals, and to advance best practices [10].

Regarding the necessity of providing healthcare epidemiologists with the proper education and training, including integrating their training with other specializations in microbiology and infectious illnesses, some worldwide experts have initiated the discussion.8 The undervalued and unmeasured economic impact of hospital infection prevention and control initiatives has also been highlighted in recent papers [10].

Hospital infection prevention and control (IPC)

Hospital infection prevention and control, or IPC, is often seen by doctors as something unnecessary and overly stringent. Nonetheless, a number of factors indicate that IPC needs to be taken seriously, including the persistence of infections linked to healthcare that can be prevented, the rise in antibiotic resistance (to which hospitals significantly contribute), and the sporadic but potentially disastrous hospital outbreaks of viral infections. Effective, evidence-based IPC practices are frequently disregarded by healthcare workers, and there is substantial evidence that physicians generally follow these guidelines less frequently than nurses. But there is a lot of variation in doctors' practices, which seems to stem from a sense of entitlement to clinical autonomy. In reality, the majority of physicians consistently follow safe IPC procedures [11].

Hand hygiene, isolating infectious patients, wearing personal protection equipment, using aseptic technique and sterile tools for invasive procedures, and environmental cleaning were all IPC tactics that were similarly used at the time as they were introduced in the 19th century. Implementing evidence-based IPC policy was and is still surprisingly challenging, though, as is the case with other preventive efforts like antibiotic prescribing recommendations [11].

Inadequate implementation of standard hospital infection prevention and control (IPC) protocols in high-income countries during this century has resulted in catastrophic nosocomial outbreaks of unusual or novel infections, such as severe acute respiratory syndrome, which have caused significant social and economic disruptions as well as preventable deaths [12].

The most evident, auditable, and possibly most successful IPC practice is hand hygiene. Its effectiveness has been known since the middle of the 1800s, when multiple studies demonstrated a temporal relationship between improved hand hygiene compliance and significant declines in pathogen transmission and hospital-acquired infections (HAI) rates. However, because of the continuous debate concerning auditing techniques and realistic compliance targets, there has been doubt about the morality of noncompliance and the use of hand hygiene as a stand-in for IPC quality [12].

Seasonal epidemics caused by influenza viruses can spread quickly and dramatically in healthcare environments. Their effects may result in patient disease and changes to hospital procedures. In order to effectively distribute and put preventative measures into practice, hospital epidemiologists and IPs monitored influenza patterns, trained staff, and conducted risk assessments. In order to combat the pandemic influenza, the US established a multifaceted national strategy that included numerous responsibilities from the government, health agency, civilian sector, and hospitals [13].

The national strategy's three major objectives were to: 1- lessen the impact of influenza by preparation and communication, which included storing vaccines and antiviral drugs; 2-surveillance and detection; and 3-reaction and containment. Health care epidemiologists and IPs are required in healthcare settings to supervise case discovery and treatment, conduct surveillance, coordinate preparation planning, and manage sophisticated patient cohosting and vaccination and antiviral tactics.

The difficulties hospital and healthcare epidemiologists will encounter in assisting healthcare facilities in fulfilling their mission, handling the influx of patients with a highly contagious disease, and tending to the anxiously ill are not anticipated in documents such as the national strategy for pandemic influenza [13].

Antimicrobial-resistant bacteria, increasingly invasive procedures and treatments, complicated patient groups, and the problems posed by new diseases are all contributing factors to the ongoing complexity of our health care system. To safeguard patients and HCWs, hospitals must employ IPs and epidemiologists who have received training in these intricate relationships. Hospital epidemiologists and IPs seek to lower HAI rates and enhance patient outcomes by creating accurate surveillance of HAIs, researching and applying best practices to treat and prevent HAIs, and training medical staff about their part in infection prevention and transmission [13].

Role of doctors

Since physicians frequently overestimate their own competence and compliance, their attitudes and behaviours are significant because they disproportionately affect other hospital staff members. However, they have multiple possibilities to spread diseases as part of their peripatetic therapeutic practice [12].

Despite ongoing pressures from other health professions, evidence-based medicine, consumerism, and more regulation, doctors continue to hold significant professional autonomy and authority. A widely accepted definition of "medical professionalism" is still elusive despite recent attempts to redefine it. However, all definitions share common commitments to things like patient welfare, maintaining knowledge and skills, and gaining the public's trust through professional self-regulation and avoiding conflicts of interest. Depending on how they view their professional identity, doctors will understand these obligations differently. Their behaviors and attitudes are nuanced and occasionally confusing in real life. If doctors' first objective is patient welfare, then it is sense to wonder why some would put their patients at risk for avoidable infections by disregarding well-established IPC guidelines [12].

The Role of the Healthcare Provider

It is everyone's duty to take precautions against and control infections. The responsibility of healthcare practitioners is to guarantee the observance of safe and efficient infection prevention and control procedures, the use of evidence-based best practice standards, and the maintenance of institutional policies' ongoing competency [14].

All medical personnel are obliged to adhere to infection prevention and control procedures when providing patient care. It's imperative to educate and support clients and their visitors about infection control practices and how to prevent infections associated with healthcare. It is imperative to consistently enhance one's knowledge and abilities in infection prevention and control to mitigate the transmission of infections, serve as an exemplar for good health promotion, and lessen health obstacles or disparities that clients may have concerning infection prevention and control [14].

Healthcare professionals have a critical duty to ensure that effective infection prevention and control protocols are in place to identify, analyze, evaluate, and manage any possible threats. This enables them to speak up in favor of the security of the public, medical personnel, and patients. In terms of infection prevention and control, health promotion, and preventative measures, healthcare practitioners have a unique opportunity to educate and empower the general population with evidence-based knowledge. Healthcare professionals can address false information on social media and educate the public about safe and effective preventive methods through health promotion and education. Promoting public awareness and healthy behaviors can be greatly aided by the assurances and encouragement provided by healthcare professionals [14].

Role of nurses in control infection

In order to prevent the spread of bacteria and viruses and treat patients for infectious diseases, registered nurses (RNs) who specialize in infection control employ the best practices. Excellent communication skills, the ability to work well under pressure, and a keen attention to detail are prerequisites for this field of work [15].

Figure 1. Responsibility of infection control nurses [15].

Control of infections in order to safeguard the public's and individuals' health, nurses collaborate with scientists, public health specialists, and governmental organizations in addition to patients and doctors. Infections related to healthcare account for around two million infections annually in the US, and these infections cause about 100,000 fatalities [15].

In a clinic or hospital context, infection prevention and control extend across several areas, including environmental controls, facility maintenance, personnel health, and patient management. It is therefore necessary for the person in charge of infection prevention and control at an eye unit or hospital to have a broad background and may need to pursue further training in order to be able to provide advise promptly. Additionally, guidelines must be flexible enough to be applied to certain clinical situations. To provide decontamination advise on a new piece of equipment, for instance, the infection prevention and control nurse must be able to critically assess cleaning and disinfection solutions and analyze and evaluate the available evidence [16].

Figure 2. It is also the duty of infection control nurses to instruct other employees in infection control practices [16].

Based on risk assessments that are based on an understanding of the microorganisms involved, the channels of transmission, and the work flow in the specialty, the infection prevention and control nurse will be providing recommendations. Depending on the circumstances and the level of risk the hospital is ready to accept as an organization, the guidance may change. In the event of an outbreak, for instance, it could be feasible to entirely suspend accepting new patients into a ward or department, halt all planned procedures, tests, and investigations, limit visiting hours, etc. Sadly, a lockdown can sometimes have unfavorable effects, such as delaying medical attention and diagnosis for patients. For patients with mental health concerns, isolating a patient may have unfavorable effects that should be considered. Individual ethnic and cultural requirements and peculiarities must also be taken into account; the topic of facial hair is one recent example of this [16].

Role of leader / Effective leadership

Effective leadership is essential for the development, implementation, and assessment of infection prevention and control strategies in any healthcare organization. Achieving continuous quality improvement and reducing the risks of infections associated with healthcare, particularly those caused by organisms resistant to antibiotics, are the goals of effective leadership in infection prevention and control [17].

A senior infection prevention and control specialist nurse, for example, should ideally be able to implement strategies that improve patient safety and reduce risk of harm, have a clear vision, and communicate clearly. Along with enhancing competency as needed through a non-punitive culture, a great leader would also acknowledge the abilities of their subordinates. Nevertheless, the multidisciplinary team's members must collaborate with this type of leader as well; the multidisciplinary team as a whole must work together for any infection prevention, control, and prevention approach to be successful [17].

Infection Prevention and Control (IPC) services

Activities related to patient care should be carried out in a clean and/or hygienic setting, with adequate IPC supplies and equipment available, as well as other aspects surrounding WASH infrastructure and services. The latter highlights the importance of having supplies and tools at the point of care that may be used to undertake proper hand hygiene. A few other novel concepts included identifying evidence-based high-risk environmental points for process control in the facility, starting with WASH training and evaluation visits to the wards and sterilization unit using the WHO WASHFIT tool, ensuring that the incinerators were operating as intended, establishing national WASH standards also for accreditation, providing training to the Ministries responsible for supervising the facility's construction and enforcing IPC regulations in the procedure [18].

Standard Precautions and Transmission-Based Precautions:

These are essential steps to prevent the spread of infections. Standard Precautions include practices like hand hygiene, personal protective equipment (PPE), and safe injection practices

National media headlines have frequently featured stories on personal protective equipment (PPE) shortages and variations in regional and global approaches to PPE deployment. Health care workers (HCWs), especially physicians and nurses, have been complaining about a lack of proper personal protective equipment (PPE) kits, including gowns, masks, and gloves, throughout the past few months while the UK has battled the coronavirus epidemic [19].

PPE for usage in healthcare settings is matched according to the procedures being carried out and the clinical setting. The levels are typically classified as standard, or as those intended to reduce the risk of contact, droplet, or airborne infections, and as enhanced PPE (full-body) for pathogens that are extremely contagious or "high-consequence." The impact of full-body personal protective equipment (PPE) used by healthcare workers (HCWs) who are exposed to highly contagious diseases—such as COVID-19, Ebola virus disease, and severe acute respiratory syndrome (SARS)—was assessed in a Cochrane study. According to the review, covering more body areas is essential for effectiveness. A gown full-body personal protective equipment (PPE) that better covers the hands, wrists, and neck can help lessen contamination; for instance, a powered, air-purifying respirator with coverall may offer greater protection than a N95 mask [19].

Disinfecting

In the medical field, many disinfectants are used, either singly or in combination (e.g., hydrogen peroxide and peracetic acid). Among these are quaternary ammonium compounds, iodophors, peracetic acid, phenolics, formaldehydes, glutaraldehydes, ortho-phthalaldehydes, hydrogen peroxide, and alcohols.

Commercial formulations based on these ingredients must be registered as separate products with the EPA or receive FDA approval. A product typically has a purpose and should be used in a particular way. In order to ensure that the proper product is selected for the intended usage and applied successfully, users should carefully read labels [20].

Figure 3. Cleaning & Disinfection Services [21].

Consistency is the cornerstone of every health-based cleaning program. There are only methods to significantly lower the bacterial and viral load within your facility; there is no way to totally eradicate it. However, the once-minimal risk posed by the microorganisms in your building could become a significant hazard if your janitorial services provider is inconsistent [21].

Infection prevention program

An infection prevention program's duties differ from one institution to the next, but they can be broadly categorized as follows: monitoring and controlling the use of institutional antibiotics and antibiotic resistance, developing policies and interventions to prevent infections, evaluating new products, surveillance, surveillance of patients with transmissible pathogens, managing and investigating outbreaks, education, employee health, and environmental hygiene. Hospital epidemiology programmes are used in certain hospitals to address patient safety and quality improvement as well. Beyond its role in the academic setting, the program may also conduct research and offer advisory services to public health organizations, other acute-care and long-term care facilities, and the university itself [22].

Conclusion

Infection control is a critical process that requires multidisciplinary collaboration. Bringing together experts from many fields improves decision-making, encourages a thorough strategy, optimizes the use of resources, allows for the exchange of knowledge, and eventually produces better results in the management and prevention of infectious illnesses. Each and every healthcare professional is essential to reducing the chance of cross contamination. Practitioners of infection prevention and control (IPC) are essential to helping organizations improve staff engagement because they possess the necessary skills and competences. IPC practitioners are skilled in clinical practice, teaching, research, and leadership. These abilities guarantee that patients receive high-quality treatment and promote staff engagement tactics.

Reference

[1] Storr J, Twyman A, Zingg W, Damani N, Kilpatrick C, Reilly J, et al. Core components for effective infection prevention and control programmes: New who evidence-based recommendations. Antimicrobial Resistance & Infection Control. 2017 Jan 10;6(1). doi:10.1186/s13756-016-0149-9

[2] Saint-Pierre C, Herskovic V, Sepúlveda M. Multidisciplinary collaboration in primary care: A systematic review. Family Practice. 2017 Sept 16;35(2):132–41. doi:10.1093/fampra/cmx085

[3] Crabtree SJ, Cohen SH. The role of multidisciplinary infection prevention teams in identifying community transmission of SARS-COV-2 in the United States. Infection Control & Hospital Epidemiology. 2020 Jul 23;42(6):780–1. doi:10.1017/ice.2020.360

[4] Desta M, Ayenew T, Sitotaw N, Tegegne N, Dires M, Getie M. Knowledge, practice and associated factors of infection prevention among healthcare workers in Debre Markos Referral Hospital, Northwest Ethiopia. BMC Health Services Research. 2018 Jun 18;18(1). doi:10.1186/s12913-018-3277-5

[5] van Woezik AF, Braakman-Jansen LM, Kulyk O, Siemons L, van Gemert-Pijnen JE. Tackling wicked problems in infection prevention and control: A guideline for co-creation with stakeholders. Antimicrobial Resistance & Infection Control. 2016

May 21;5(1). doi:10.1186/s13756-016-0119-2

[6] Peter D, Meng M, Kugler C, Mattner F. Strategies to promote infection prevention and control in acute care hospitals with the help of Infection Control Link Nurses: A systematic literature review. American Journal of Infection Control. 2018 Feb;46(2):207–16. doi:10.1016/j.ajic.2017.07.031

[7] Thandar MM, Rahman MdO, Haruyama R, Matsuoka S, Okawa S, Moriyama J, et al. Effectiveness of infection control teams in reducing healthcare-associated infections: A systematic review and meta-analysis. International Journal of Environmental Research and Public Health. 2022 Dec 19;19(24):17075. doi:10.3390/ijerph192417075

[8] Aziz A-M. Infection prevention and control practitioners: Improving engagement. British Journal of Nursing. 2016 Mar 24;25(6):297–302. doi:10.12968/bjon.2016.25.6.297

[9] Limb M. NHS must show that staff engagement work is effective, researchers say: BMJ. 2015 Jul 12; doi:10.1136/bmj.h3795

[10] Wright SB, Ostrowsky B, Fishman N, Deloney VM, Mermel L, Perl TM. Expanding roles of healthcare epidemiology and Infection Control in spite of limited resources and compensation. Infection Control & Hospital Epidemiology. 2010 Feb;31(2):127–32. doi:10.1086/650199

[11] Gilbert GL, Kerridge I. Hospital infection control: Old problem – evolving challenges. Internal Medicine Journal. 2020 Jan;50(1):105–7. doi:10.1111/imj.14686

[12] Gilbert GL, Kerridge I. The Politics and Ethics of Hospital Infection Prevention and Control: A qualitative case study of senior clinicians' perceptions of professional and cultural factors that influence doctors' attitudes and practices in a large Australian Hospital. BMC Health Services Research. 2019 Apr 2;19(1). doi:10.1186/s12913-019-4044-y

[13] Sydnor ER, Perl TM. Hospital epidemiology and infection control in acute-care settings. Clinical Microbiology Reviews. 2011 Jan;24(1):141–73. doi:10.1128/cmr.00027-10

[14] Hughes M, Kenmir A, St-Amant O, Cosgrove C, Sharpe G. The role of the healthcare provider [Internet]. [cited 2024 Mar 11]. Available from: https://ecampusontario.pressbooks.pub/introductiontoipcp/chapter/chapter-1/

[15] Mozafaripour S. What is the role of an infection control nurse? [Internet]. 2020 [cited 2024 Mar 11]. Available from: https://www.usa.edu/blog/infection-control-nurse/

[16] West J. The role of an infection prevention and Control Nurse [Internet]. U.S. National Library of Medicine; 2021 [cited 2024 Mar 11]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8528055/

[17] Burnett E. Effective infection prevention and control: The nurse's role. Nursing Standard. 2018 Jun;33(4):68–72. doi:10.7748/ns.2018.e11171

[18] Tomczyk S, Storr J, Kilpatrick C, Allegranzi B. Infection prevention and control (IPC) implementation in low-resource settings: A qualitative analysis. Antimicrobial Resistance & Infection Control. 2021 Jul 31;10(1). doi:10.1186/s13756-021-00962-3

[19] Tian Z, Stedman M, Whyte M, Anderson SG, Thomson G, Heald A. Personal Protective Equipment (PPE) and infection among healthcare workers – what is the evidence? International Journal of Clinical Practice. 2020 Sept 9;74(11). doi:10.1111/ijcp.13617

[20] Disinfection methods [Internet]. Centers for Disease Control and Prevention; 2016 [cited 2024 Mar 11]. Available from: https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/index.html

[21] Hesson M. Cleaning & disinfection services must meet current challenges [Internet]. Stathakis; 2020 [cited 2024 Mar 11]. Available from: https://www.stathakis.com/blog/cleaning-

disinfection-services-must-meet-current-challenges

[22] Edmond MB, Wenzel RP. Infection prevention in the health care setting. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 2015; doi:10.1016/b978-1-4557-4801-3.00300-3