Microbial contamination on operating room surfaces: A cross-sectional study

Contaminação microbiana em superfícies de salas operatórias: um estudo transversal

Contaminación microbiana de las superficies del quirófano: un estudio transversal

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ABSTRACT: Objective: To analyze microbial contamination on operating room surfaces. **Method:** A cross-sectional study was conducted using sampling from surgical procedures in specialties with high surgical site infection rates. Sterile swabs were collected from furniture and equipment immediately after patient discharge, prior to concurrent cleaning. **Results:** Twelve surgeries were analyzed, considering variables such as surgical specialty and procedure classification. Bacterial cultures showed that the surgical site had 100% positivity, followed by the surgical table with 91.67%. For fungi, the preparation table and anesthesia equipment showed 75% positivity. **Conclusion:** The results provide relevant insights into the distribution and prevalence of microorganisms on furniture and equipment surfaces used in surgical procedures, contributing to a better understanding of microbiology in this context.

Keywords: Operating rooms. Cross infection. Bacteria. Fungi. Contamination.

RESUMO: Objetivo: Analisar a contaminação microbiana de superfícies de sala operatória. **Método:** Estudo do tipo transversal, utilizando amostragem de procedimentos cirúrgicos de especialidades com altas taxas de infecção de sítio cirúrgico. Foram coletadas amostras com swabs estéreis em móveis e equipamentos logo após a saída dos pacientes, antes da limpeza concorrente. **Resultados:** Analisadas doze cirurgias, apresentando variáveis como especialidade cirúrgica e classificação da cirurgia. A cultura bacteriana demonstrou que o foco cirúrgico teve 100% de positividade, seguido pela mesa cirúrgica, com 91,67%. Para fungos, a mesa de paramentação e o aparelho de anestesia tiveram 75% de positividade. **Conclusão**: Os resultados contribuem com percepções relevantes sobre a distribuição e a prevalência de microrganismos em superfícies de mobílias e equipamentos utilizados em procedimentos cirúrgicos, contribuindo para o entendimento da microbiologia nesse contexto.

Palavras-chave: Salas cirúrgicas. Infecção hospitalar. Bactérias. Fungos. Contaminação.

RESUMEN: Objetivo: Analizar la contaminación microbiana de las superficies del quirófano. **Método:** Estudio transversal que utilizó muestreo de procedimientos quirúrgicos de especialidades con altas tasas de infección del sitio quirúrgico. Se recolectaron muestras con hisopos estériles de muebles y equipos inmediatamente después de la salida de los pacientes, antes de la limpieza concurrente. **Resultados:** Se analizaron doce cirugías, considerando variables como especialidad quirúrgica y clasificación de la cirugía. El cultivo bacteriano mostró que el foco quirúrgico presentó un 100% de positividad, seguido de la mesa quirúrgica con 91,67%. En cuanto a los hongos, la mesa de preparación y el equipo de anestesia mostraron un 75% de positividad. **Conclusión:** Los resultados aportan percepciones relevantes sobre la distribución y prevalencia de microorganismos en superficies de muebles y equipos utilizados en procedimientos quirúrgicos, contribuyendo a la comprensión de la microbiología en este contexto.

Palabras clave: Quirófanos. Infección hospitalaria. Bacterias. Hongos. Contaminación.

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INTRODUCTION

Florence Nightingale, in introducing the Environmental Theory in the 19th century, emphasized the role of the environment in preventing contamination and promoting patient recovery. Her innovative perspective underscored the importance of maintaining clean, well-lit, and ventilated spaces, establishing the basis for sanitary practices and hospital hygiene routines that substantially improved healthcare standards[1].

Environmental contamination is a critical factor in the prevention of healthcare-associated infections (HAIs). The presence of pathogenic microorganisms on hospital surfaces, medical equipment, and in ambient air constitutes a potential vector for the transmission of nosocomial infections[2]. In this context, the risk of infection is determined not only by the presence of microorganisms but also by their microbiological load, the patient's clinical condition, and the type of surgical procedure performed. Consequently, the coordination of safe surgery protocols, infection prevention strategies, and adverse event management is essential to ensure effective and safe surgical care[3].

Surgical site infections (SSIs) represent a significant concern in hospitals and are predominantly caused by microorganisms that invade the surgical incision site. Among the principal pathogens are the Gram-positive bacteria *Staphylococcus aureus* and *Staphylococcus epidermidis*[4].

Given this scenario, the Centers for Disease Control and Prevention[5] highlight the importance of controlling environmental contamination as a rational and essential measure to prevent SSIs, considering the ability of these microorganisms to survive in the surgical environment. In this context, rigorous monitoring of cleaning and disinfection procedures plays a pivotal role[6].

The control of hospital environmental contamination is based on the classification of environments into critical, semi-critical, and non-critical areas, each with specific cleaning and disinfection protocols. Critical areas, such as surgicenters and intensive care units, demand more rigorous hygiene procedures due to the elevated risk of HAI transmission[3].

A systematic literature review demonstrated that surfaces frequently touched by medical staff are highly susceptible to colonization by pathogens associated with nosocomial infections, including *coagulase-negative Staphylococcus* and *Pseudomonas aeruginosa*. These findings reveal the persistence of microorganisms even after hygiene procedures, thereby compromising the safety of the surgical environment[7].

Considering the interconnectedness of these elements, investigating the microbiological load present in the surgical environment contributes to the improvement of cleaning and disinfection protocols, reinforces biosafety practices, and supports evidence-based strategies for reducing SSIs. Further research and the implementation of specific contamination control strategies are essential to ensuring a safe hospital environment and decreasing the incidence of HAIs.

OBJECTIVES

Analysis of microbial contamination on operating room surfaces.

METHODS

Type of study

Cross-sectional, descriptive, and exploratory study with a quantitative approach.

Study location

The study was conducted at a university hospital in Paraná, a public tertiary-care institution. The hospital's surgicenter comprises seven operating rooms, enabling a monthly average of 880 surgeries in 2023 and encompassing a wide range of procedures.

Sampling

A convenience sample was obtained through the collection of microbiological cultures from operating room furniture and equipment prior to the implementation of concurrent cleaning procedures. Samples were selected from operating rooms associated with surgical specialties that exhibited the highest absolute surgical site infection rates between March 2022 and March 2023, as reported by the hospital infection control committee (HICC) of the institution under study.

Samples collected from operating rooms designated for patients requiring contact/transmission-based precautions were excluded from the study, particularly those involving multidrug-resistant bacterial infections, suspected or confirmed COVID-19 cases, and tuberculosis. Operating rooms used for urgent/emergency surgeries were also excluded from

the analysis. These exclusions were implemented to ensure data validity and to more accurately reflect standard conditions for elective surgeries, thereby minimizing potential bias.

Data collection procedure

Initially, surgical site infection rates were analyzed for the period from March 2022 to March 2023. Data were obtained from the HICC to identify the surgical specialties with the highest incidence of SSIs. Specialties with the highest rates were subsequently selected for a detailed assessment of surface contamination in their respective operating rooms. Among these, neurosurgery had the highest number of cases, with 21 infections, followed by orthopedics with 19 and vascular surgery with 17.

Microbiological sampling focused on the surfaces of furniture and equipment critical to surgical procedures and the organization of the operating room, including the operating table, anesthesia machine, surgical light, surgical instrument table, and the auxiliary table used for arranging surgical gowns. This selection was based on the high frequency of direct handling and their proximity to the sterile field, factors that render these areas critical for the prevention of surgical infections. These items represent some of the primary vectors for cross-transmission in surgical centers[5].

The collection procedure, conducted by the principal investigator, was carried out in three distinct phases: the first on the initially designated collection day, the second seven days later, and the third seven days after the second collection. These procedures were performed in accordance with the requirements of the Laboratory of the Department of Pathology, Clinical, and Toxicological Analysis (*Departamento de Patologia, Análises Clínicas e Toxicológicas* – PAC) of the institution, which was responsible for analyzing the samples.

On day zero, the researcher visited the surgicenter, reviewed the preliminary schedule, and identified cases that met the study criteria, including the contamination level of each procedure, as classified in the institution's system by the nurse in charge of the shift. On the scheduled collection day, at the conclusion of each surgical procedure, the researcher instructed the team to remove only the materials on the surfaces, as well as the sheets and drapes, without performing concurrent cleaning of the furniture.

Collections were conducted during daytime hours (morning and afternoon) in the month of June. Samples were obtained immediately after the patient exited the operating room, prior to the initiation of concurrent cleaning procedures. This timing was selected to assess the surfaces of furniture and equipment in their unhygienic state, thereby evaluating contamination levels following the patient's departure.

After the circulating staff and patient had left, the researcher collected samples from the bottom, top, and center corners of each piece of furniture using a sterile swab. The dimensions of each piece of furniture and equipment were estimated visually and measured with a ruler (without contacting the surface), establishing a standardized collection area of 2 cm × 2 cm, as shown in Figure 1.

For the collection of each sample, the friction technique with direct inoculation onto Petri dishes was employed, using two dry sterile swabs per piece of furniture[8]. One swab was streaked onto Trypticasein Soy Agar (TSA) medium, and the other onto Sabouraud Agar medium. Inoculation was performed within the operating room.

This procedure ensured consistent and representative sampling of the areas exposed to potential microbiological contamination.

Subsequently, the collected samples were labeled and transported to the Laboratory of the Department of Pathology, Clinical Analysis, and Toxicology (PAC), packed in a sealed Styrofoam box to maintain sample integrity during transport. Plates containing TSA were incubated in a bacteriological incubator at 36°C for 24 hours, while plates containing Sabouraud Agar were incubated at 25°C for five days.

Following incubation, Gram staining was performed, the morphological characteristics of bacterial colonies were examined, and the microorganisms were identified. For Gram-positive cocci appearing in clusters, catalase and DNase tests were conducted. Gram-negative bacilli were characterized using a series of biochemical tests, including assays for glucose fermentation, gas production, urease activity, hydrogen sulfide production, and tryptophan deamination (EPM), motility assessment, indole production, lysine

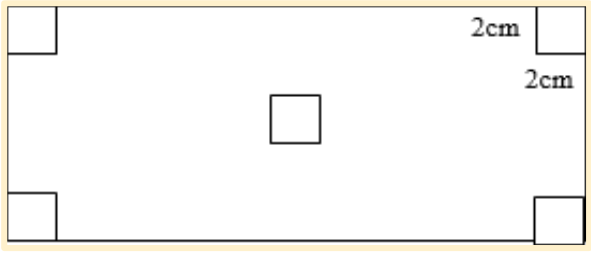

Figure 1. Swab collection model performed on surfaces or equipment.

degradation (MILI), and specific tests for citrate, arginine, and ornithine utilization[8].

Colonies grown on Sabouraud Agar were characterized using the microcultivation technique, primarily to identify filamentous fungi[8].

Data analysis

The full set of analytical procedures was conducted in the Laboratory of the institution's Department of Pathology, Clinical Analysis, and Toxicology, under the direct supervision of a collaborating professor from the Department of Clinical Analysis, with assistance from a master's student. This collaboration ensured the accuracy and reliability of the results obtained in identifying the microorganisms present in the collected samples.

Several microbiological categories were analyzed by calculating their absolute and relative frequencies, followed by the determination of 95% confidence intervals for the percentage estimates.

Subsequently, the prevalence of culture positivity for the same variables was determined by calculating absolute and relative frequencies, along with their corresponding confidence intervals. In addition, the association between surgical specialty and culture positivity was examined using Fisher's exact test.

Ethical and legal aspects

To ensure ethical and regulatory compliance, essential procedures were completed prior to data collection. Formal authorization was obtained from the institution where the study was conducted, as documented in Appendix A.

Subsequently, the research project was submitted to the Human Research Ethics Committee of the affiliated university and was assigned CAAE: 69883723.7.0000.5231, as documented in Appendix B. Exemption from the Informed Consent Form was granted, as the study did not involve the collection of identifiable data or direct intervention with human subjects. This procedure was conducted in accordance with Resolution No. 466/2012 of the National Health Council, which establishes guidelines and regulatory standards for research involving human participants, thereby ensuring ethical compliance and integrity throughout the study.

RESULTS

This study investigated twelve surgeries conducted over three days, with four procedures performed each day. The variables analyzed included operating room number, surgical specialty, surgery classification according to contamination potential, and the time of day when procedures were performed. Regarding operating room allocation, usage was variable, with the highest frequencies observed in rooms 7 (33.3%) and 5 (25%), while the remaining rooms were used less frequently.

Regarding surgical specialty, orthopedic procedures predominated (66.67%), followed by neurological (16.67%) and vascular (16.67%) surgeries. Classification of surgeries according to the potential for surgical wound contamination indicated a predominance of clean procedures (66.67%), followed by potentially contaminated procedures (25%), and, to a lesser extent, contaminated procedures (8.33%).

With respect to the time of day, the majority of surgeries were performed in the morning (75%), while a smaller proportion took place in the afternoon (25%). Analysis of culture positivity revealed the highest frequency on the focus (100%), followed by the surgical table (91.67%), instrumentation table (75%), surgical clothing (66.67%), and anesthesia equipment (66.67%), as presented in Table 1.

Based on the confidence intervals for each item analyzed, it can be inferred that the focus, surgical table, instrumentation

Table 1. Distribution of culture positivity by collection site. Londrina (PR), 2024.

Charcteristic	n	Frequency	Relative frequency (%)	95%CI*
Focus	12	12	100	(69.87–100)
Surgical table	12	11	91.67	(59.75–99.56)
Instrument table	12	9	75	(42.84–93.31)
Draping/sterile field setup	12	8	66.67	(35.44–88.73)
Anesthesia machine	12	8	66.67	(35.44–88.73)

* 95% confidence interval for proportion.
Source: Study data.

table, surgical clothing, and anesthesia equipment do not exhibit significantly different frequencies of contamination.

None of the variables analyzed demonstrated a statistically significant association with surgical specialty (orthopedics, neurosurgery, or vascular surgery). All p-values were greater than 0.05, as determined using Fisher's exact test, indicating no significant differences between groups and suggesting that the practices evaluated were consistent across the different specialties.

The highest frequency of bacterial contamination was observed on the focus (100%), followed by the surgical table (91.67%), instrumentation table (75%), surgical gowning (66.67%), and anesthesia machine (66.67%). Regarding fungal contamination, the gowning table exhibited the highest frequency of culture positivity (75%), followed by the anesthesia machine (75%), instrumentation table (50%), focus (41.67%), and surgical table (25%). Additional details are presented in Tables 2 and 3.

Table 2. Distribution of bacterial microorganisms and their classification by collection site. Londrina (PR), 2024.

Bacteria				
Characteristic	**n**	**Frequency**	**Relative frequency (%)**	**95%CI***
Dressing table				
Coagulase-negative staphylococci	12	8	66.67	(35.44–88.73)
Short and long GPB	12	4	33.33	(11.27–64.56)
None	12	4	33.33	(11.27–64.56)
Staphylococcus aureus	12	1	8.33	(0.44–40.25)
Instrument table				
Coagulase-negative staphylococci	12	7	58.33	(28.6–83.5)
Short and long GPB	12	4	33.33	(11.27–64.56)
Micrococcus sp.	12	3	25	(6.69–57.16)
None	12	3	25	(6.69–57.16)
Staphylococcus aureus	12	1	8.33	(0.44–40.25)
Anesthesia equipment				
Coagulase-negative staphylococci	12	5	41.67	(16.5–71.4)
Short and long GPB	12	1	8.33	(0.44–40.25)
Micrococcus sp.	12	1	8.33	(0.44–40.25)
None	12	4	33.33	(11.27–64.56)
Staphylococcus aureus	12	3	25	(6.69–57.16)
Surgical field				
Coagulase-negative staphylococci	12	12	100	(69.87–100)
Short and long GPB	12	7	58.33	(28.6–83.5)
Micrococcus sp.	12	3	25	(6.69–57.16)
Staphylococcus aureus	12	5	41.67	(16.5–71.4)
Surgical table				
Coagulase-negative staphylococci	12	11	91.67	(59.75–99.56)
Short and long GPB	12	2	16.67	(2.94–49.12)
Micrococcus sp.	12	2	16.67	(2.94–49.12)
None	12	1	8.33	(0.44–40.25)
Staphylococcus aureus	12	1	8.33	(0.44–40.25)

*95% confidence interval for proportion.
GPB: Gram-positive bacilli
Source: Study data.

Table 3. Distribution of frequency and type of fungal microorganisms by collection site. Londrina (PR), 2024.

Fungi			
Characteristic	**Frequency**	**Relative frequency (%)**	**95%CI***
Dressing table			
Cladophialophora spp	6	50	(25.38–74.62)
No growth	3	25	(6.69–57.16)
Exophiala spp	1	8.33	(0.44–40.25)
Lichthemia spp	1	8.33	(0.44–40.25)
Alternaria spp	1	8.33	(0.44–40.25)
Aspergillus spp	1	8.33	(0.44–40.25)
Paecilomyces lilacinus	1	8.33	(0.44–40.25)
Unidentified (no fruiting structure)	1	8.33	(0.44–40.25)
Instrument table			
No growth	6	50	(25.38–74.62)
Cladophialophora spp	5	41.67	(16.5–71.4)
Aspergillus spp	2	16.67	(2.94–49.12)
Penicillium spp	1	8.33	(0.44–40.25)
Unidentified (no fruiting structure)	1	8.33	(0.44–40.25)
Anesthesia equipment			
Cladophialophora spp	5	41.67	(16.5–71.4)
No growth	3	25	(6.69–57.16)
Unidentified (no fruiting structure)	2	16.67	(2.94–49.12)
Exophiala spp	1	8.33	(0.44–40.25)
Penicillium spp	1	8.33	(0.44–40.25)
Aspergillus spp	1	8.33	(0.44–40.25)
Surgical field			
No growth	7	58.33	(28.6–83.5)
Exophiala spp	2	16.67	(2.94–49.12)
Alternaria spp	1	8.33	(0.44–40.25)
Penicillium spp	1	8.33	(0.44–40.25)
Unidentified (no fruiting structure)	1	8.33	(0.44–40.25)
Surgical table			
No growth	9	75	(42.84–93.31)
Exophiala spp	1	8.33	(0.44–40.25)
Unidentified (no fruiting structure)	1	8.33	(0.44–40.25)
Cladophialophora spp	1	8.33	(0.44–40.25)

*95% confidence interval for proportion.
Source: Study data.

DISCUSSION

The findings of this study indicate substantial microbial contamination in surgical environments, even during procedures classified as clean in terms of surgical wound contamination potential. The highest rates of positivity were observed on the surgical focus (100%) and surgical table (91.67%), with a predominance of *coagulase-negative Staphylococcus*, *Staphylococcus aureus*, and fungi such as *Cladophialophora* spp.

Surgicenters face considerable challenges in delivering safe, high-quality care due to the intrinsic complexity of the procedures performed[2]. In this context, the presence of pathogenic microorganisms represents a substantial threat to patient health, with the potential to cause surgical site infections[3].

Bacteria are ubiquitous organisms capable of colonizing a wide range of surfaces and environments, from abiotic settings to the bodies of living organisms, contributing to the composition of the microbiota. Although their presence is generally common and often harmless, detection in critical environments such as operating rooms warrants concern. This underscores the importance of monitoring and controlling microbial load in these settings to prevent hospital-acquired infections[9].

Furthermore, bacteria of the *Staphylococcus* genus are prone to frequent cross-infection, occurring both via the airborne route and through direct contact with contaminated surfaces, often mediated by the hands of healthcare professionals. They also demonstrate the ability to survive on dry surfaces for extended periods[10].

Species of the genus *Micrococcus*, commonly identified in the normal microbiota of the skin, mucosa, and oropharynx, exhibit a saprophytic profile and are generally considered harmless. However, their presence, often underestimated in clinical settings, underscores the need for infection prevention strategies that comprehensively address all potential pathogens[9].

A study conducted by Fukada et al.[11] investigated contamination in operating rooms, with emphasis on the transmission of pathogens by anesthesiologists. The research identified a predominance of *coagulase-negative Staphylococcus* and *Bacillus sp*., suggesting that handling electronic equipment, such as computers, with potentially contaminated gloves may represent an important vector for the spread of microorganisms in surgical environments.

The systematic review conducted by Dresch et al.[12] emphasizes the relevance of surface contamination in critical environments, such as intensive care units and operating rooms, identifying them as potential reservoirs of nosocomial pathogens. The study reported the recurrent presence of microorganisms such as *coagulase-negative Staphylococcus* and *Pseudomonas aeruginosa* on surfaces frequently handled by medical staff, particularly anesthesia equipment.

In 2010, the Brazilian Health Regulatory Agency (*Agência Nacional de Vigilância Sanitária*) published the manual entitled "Patient Safety in Healthcare Services: Cleaning and Disinfection of Surfaces" (*Segurança do paciente em serviços de saúde: limpeza e desinfecção de superfície*), aimed at improving indirect care in the healthcare system. Although it contributes to safety in healthcare settings, the document predominantly emphasizes visual inspection as the primary method for assessing surface cleaning and disinfection[13].

Recent research has incorporated complementary methods, such as measuring adenosine triphosphate (ATP) levels and performing microbiological cultures, in addition to visual inspection, to monitor the cleanliness of operating room surfaces before and after cleaning procedures. Results showed that although 93.3% of the analyzed areas were visually classified as clean, additional testing revealed elevated ATP levels and the presence of biofilm-forming microorganisms, with anesthesia equipment presenting the highest contamination rate[14].

This finding underscores that visual inspection alone may provide a false sense of cleanliness. Evidence also indicates that furniture and equipment classified as high-touch, due to frequent handling during patient care, can serve as significant reservoirs of pathogenic microorganisms[14].

Furthermore, air contamination in artificially air-conditioned operating rooms is a concern due to its potential impact on the occurrence of SSIs. The presence of microorganisms in the air may result in their direct deposition on the surgical incision or on the surfaces of equipment and instruments, facilitating transfer to the surgical wound[15]. Anemophilous fungi, airborne microorganisms encompassing various genera and species, are recognized as predominant contaminants in closed, artificially air-conditioned environments, such as hospitals[16].

As human pathogens, species of the genus *Aspergillus* can cause aspergillosis in various clinical forms and are associated with a wide range of other infections[17]. *Penicillium*, first identified in 1809 and belonging to the phylum *Ascomycota*, comprises approximately 483 species that inhabit diverse substrates. Some of these species can cause opportunistic infections in humans, including disseminated infections and brain abscesses in immunocompromised individuals[18].

A study conducted in a tertiary hospital in Pernambuco, Brazil, reported the growth of 938 colony-forming units (CFU), with *Aspergillus* and *Penicillium* identified as the most prevalent genera, consistent with findings from international studies[19]. These results underscore the importance of environmental monitoring of airborne filamentous fungi to reduce their concentration in operating rooms and prevent infections, supporting the adoption of standardized protocols for sample collection and culture in hospital settings[20].

This study had several limitations that should be considered when interpreting the results. Limited financial resources may have constrained the number of collections and laboratory analyses. In addition, including surgical procedures with varying contamination potential, rather than focusing on a single category, may have introduced variability into the data. The small sample size further limited the ability to detect statistically significant differences between the surgical specialties analyzed.

Despite these limitations, the study contributes to the field of health and safety in surgical environments by identifying vulnerabilities and enriching the scientific literature on infection control. It provides data and analyses that may inform future research and support the development of targeted interventions.

The findings of this research can inform the development of more effective standards and guidelines for preparing the surgical environment, as well as the creation of training programs for surgical teams. Such initiatives are essential for promoting safe practices and reducing the incidence of nosocomial infections, thereby ensuring patient safety.

CONCLUSION

Analysis of microbial contamination on operating room surfaces revealed high levels of microorganisms, even during procedures classified as clean with respect to surgical wound contamination potential. Surfaces such as surgical lights and surgical tables were identified as significant reservoirs of potentially pathogenic agents implicated in the etiology of surgical site infections. These findings underscore the need for evidence-based cleaning and disinfection protocols that incorporate objective microbiological monitoring methods in addition to traditional visual inspection.

Thus, the study confirms that environmental contamination constitutes a risk to surgical patient safety. The recurrent presence of bacteria such as *Staphylococcus spp*. and *Micrococcus spp*., as well as airborne fungi including *Aspergillus* and *Penicillium*, underscores the contributions of both human and environmental factors. Overall, the results enhance our understanding of microbial contamination in surgical environments and provide valuable insights for improving infection control practices, thereby promoting greater effectiveness and safety in perioperative care.

FUNDING

None.

CONFLICT OF INTERESTS

The authors declare there is no conflict of interests.

AUTHORS' CONTRIBUTION

ACRB: formal analysis, writing – original draft, investigation, methodology, software. CCT: project administration, funding acquisition, supervision, visualization. KSO: writing – review & editing. ADG: conceptualization, validation. ECV: data curation, resources. POSC: data curation.

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APPENDIX A. Study Institution Authorization.

Universidade Estadual de Londrina — Hospital Universitário UEL - Londrina — Governo do Estado do Paraná

PROTOCOLO INTEGRADO DO ESTADO Fls. 26 Mov. 11

Hospital Universitário
Diretoria Superintendente
PARECER Nº694
PROCESSO Nº20311435-4.2023

À Pesquisadora
Amanda Corrêa Rocha Bortoli

Considerando o Projeto de pesquisa com o título: "**Contaminação Ambiental da Sala Operatória-Análise do Perfil Microbiológico e Redução Pós Limpeza Concorrente"** apresentado a esse Hospital Universitário, estando vinculado ao Departamento de Enfermagem do Centro de Ciências da Saúde da Universidade Estadual de Londrina.

Considerando o parecer favorável apresentado nas instâncias administrativas que envolvem a realização do estudo.

Informamos que o nosso **parecer é favorável** à realização do projeto acima nominado, resguardando-se o atendimento da legislação vigente.

Atendendo a Resolução 466/12 do Conselho Nacional de Saúde o projeto deverá ser analisado pelo Comitê de Ética em Pesquisa da UEL (CEP/UEL) para posterior operacionalização.

Para acesso ao prontuário eletrônico o pesquisador (a) deverá dirigir-se a essa Comissão para registro de senha de consulta sendo obrigatório apresentar cópia do parecer de aprovação do CEP/UEL.

Conforme **Ofício Circular da Diretoria Superintendente do HU nº214/2015**, a cópia do parecer de aprovação do CEP/UEL também deverá ser apresentado á Chefia/ou Gerente das unidades envolvidas antes do inicio da coleta de dados.

Solicitamos que uma vez realizado o estudo, uma cópia seja apresentada a esta Diretoria, para ciência e divulgação.

Em 05/05/2023

Enfa. Dra.Vivian Biazon El Reda Feijó
Diretora Superintendente do HU.

Campus Universitário: Rodovia Celso Garcia Cid (PR 445), Km 380 - Fone (43) 3371-4000 - PABX - Fax 3328-4440 - Caixa Postal 6001 - CEP 86051-980 - Internet http://www.uel.br
LONDRINA - PARANÁ - BRASIL

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APPENDIX A. Continuation.

ePROTOCOLO

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Assinatura Avançada realizada por: **Vivian Biazon El Reda Feijo (XXX.262.338-XX)** em 08/05/2023 16:14 Local: UEL/HU/DS.

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APPENDIX B. Substantiated Opinions.

UNIVERSIDADE ESTADUAL DE LONDRINA - UEL

Continuação do Parecer: 6.194.177

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_DO_PROJETO_2115381.pdf	04/07/2023 22:24:39		Aceito
Outros	cartaconformidadecep.pdf	04/07/2023 22:23:53	Amanda Corrêa Rocha Bortoli	Aceito
Recurso Anexado pelo Pesquisador	pendenciasCEP.docx	04/07/2023 22:23:11	Amanda Corrêa Rocha Bortoli	Aceito
Projeto Detalhado / Brochura Investigador	ProjetoMestradoAmandaCep.doc	04/07/2023 22:22:28	Amanda Corrêa Rocha Bortoli	Aceito
Cronograma	CRONOGRAMAcep.docx	04/07/2023 22:22:01	Amanda Corrêa Rocha Bortoli	Aceito
Declaração de Pesquisadores	coparticipante.pdf	04/07/2023 22:21:37	Amanda Corrêa Rocha Bortoli	Aceito
Declaração de concordância	Processoaprovadohu.pdf	15/05/2023 20:19:26	Amanda Corrêa Rocha Bortoli	Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TermodeConfidencialidadeeSigilo.doc	05/04/2023 22:16:34	Amanda Corrêa Rocha Bortoli	Aceito
Folha de Rosto	folhaderostomestrado.pdf	05/04/2023 21:57:56	Amanda Corrêa Rocha Bortoli	Aceito
Orçamento	orcamento.docx	02/04/2023 16:09:26	Amanda Corrêa Rocha Bortoli	Aceito

Situação do Parecer:
Aprovado

Necessita Apreciação da CONEP:
Não

LONDRINA, 20 de Julho de 2023

Assinado por:
Adriana Lourenço Soares Russo
(Coordenador(a))

Endereço: LABESC - Sala 14
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