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Outpatient private health services: knowing infection prevention actions for patient safety

Serviços ambulatoriais privados de saúde: conhecendo as ações de prevenção de infecções para a segurança do paciente

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ABSTRACT

Introduction: Private outpatient health services are growing in number and diversity, and implement autonomously prevention actions. **Objective:** To survey existent actions in private outpatient health services related to infection prevention. **Method:** We performed a descriptive exploratory research; encompassing 14 private health clinics in Porto Alegre/Rio Grande do Sul. **Results:** It was evidenced that 36% of the services maintained an infection control commission; 64% calculated rates of infection, and 100% performed regular training activities. Regarding hand hygiene, 100% distributed alcohol gel and 14% calculated adherence indicators. As to safe injection, 71% of the services had written guidelines, but only 7% monitored the practice. Only 14% of the services had cough tags, and 36% of the services detected bearers of multiresistant germs. Only 36% of the services monitored routine skills after training. Speech content analysis brought four main categories: Education, prevention, surveillance and infection control, being education the most relevant. **Conclusions:** The services maintained preventive actions, especially those related to equipment, products, routines and training. However, monitoring and evaluation of infection prevention processes need to be advanced in order to guarantee patient safety and quality of care.

KEYWORDS: Cross Infection; Ambulatory Care; Prevention; Health Education; Patient Safety

RESUMO

Introdução: Os serviços ambulatoriais privados de saúde crescem em número e diversidade e implantam, de forma autônoma, as ações de prevenção de infecções. **Objetivo:** Conhecer as ações existentes nos serviços ambulatoriais privados de saúde quanto à prevenção das infecções. **Método:** Trata-se de uma pesquisa exploratória descritiva, realizada em 14 clínicas privadas de saúde em Porto Alegre (RS). **Resultados:** Evidenciou-se que 36% dos serviços mantinham Comissão de Controle de Infecção, 64% calculavam taxas de infecção e 100% realizavam capacitações. Quanto à higiene de mãos, 100% distribuíam álcool gel e 14% calculavam indicador de adesão. Na injeção segura, 71% tinham orientações escritas, mas apenas 7% monitoravam a prática; somente 14% dos serviços tinham orientação da etiqueta da tosse e 36% dos serviços detectavam portadores de germes multirresistentes. Somente 36% monitoravam competências das rotinas após capacitações. Na análise do conteúdo das falas, emergiram quatro categorias denominadas: Educação, Prevenção, Vigilância e Controle de Infecção, sendo Educação a de maior relevância. **Conclusões:** Os serviços mantinham ações para prevenção, especialmente as relacionadas aos equipamentos, produtos, rotinas e capacitações, entretanto precisam avançar no monitoramento e na avaliação dos processos assistenciais de prevenção das infecções, a fim de garantir a segurança do paciente e qualidade da assistência.

PALAVRAS-CHAVE: Infecção Hospitalar; Assistência Ambulatorial; Prevenção; Educação em Saúde; Segurança do Paciente

INTRODUCTION

Healthcare-associated infections (HAI) are a serious public health problem worldwide. These infections are considered health-related Adverse Events (AE) with high morbidity and mortality and direct impact on patient safety and healthcare quality[1]. Many patients, when seeking assistance, are susceptible to HAI, especially when they have risk factors like old age, chronic diseases and frequent hospitalizations.Companions, visitors and healthcare professionals who transit and operate in the environment are also subject to infections[2].

Outpatient health services, like medical clinics with invasive procedures, minor outpatient surgery centers and other specialized settings deserve attention when it comes to risks of infection[3]. These health services are increasingly incorporating technology and expanding their diversity of care, doing prevention, diagnosis, treatment and even aesthetics. In the United States, more than three-quarters of health operations are performed outside hospitals[4]. In Brazil, according to data from the IT department of the Brazilian Unified Health System (DATASUS)/Ministry of Health (MS) of 2017,the country had 79,240 outpatient establishments within the Unified Health System (SUS) and 205,362 private outpatient services[5]. The basis of healthcare is outpatient assistance, which comprises outpatient care provided in hospitals, clinics and non-hospital surgical centers, with wide use by the public and private community[6].

Today, there are serious problems arising from the transmission of diseases caused by viruses, bacteria, fungi and the occurrence of microbial resistance, with greater relevance for carbapenemic resistant bacteria[1]. We often see news of outbreaks of infection after procedures related to poor practices in infection prevention in outpatient settings[7,8]. The damage resulting from failure in healthcare processes in outpatient clinics of several specialties causes harm and generates legal complaints from countless users who seek these apparently low-risk clinics and leave with unexpected injuries[9].

Although outpatient settings are included in the “health services” expression in national laws and recommendations, it is the hospitals, with their more complex services, that receive systematic regulation of health surveillance[10]. Outpatient settings need to autonomously provide knowledge and suitable structures and processes to participate in the health systemwith safe actions.Therefore, knowledge about the topic is essential for the application of infection prevention practices and thus ensure a safe and reliable environment for users and professionals.

In a recently conducted integrative review of the risks of infection in outpatient health services outside hospitals, the followingstand out as having the highest risk of infection: surgical clinics, oncology clinics, endoscopy clinics, dialysis clinics and diagnostic clinics through imaging with contrast scans[11].The main related risks are: non-compliance with the rules of safe injection practices[9,12,13], failure in cleaning and disinfection of articles and equipment[8], presence of multiresistant germs[14], poor compliance with hand hygiene, lack of implementation and supervision of infection prevention and control programs; lack of infection rates and reports of threats to the regulatory body[15,16,17].

In view of the foregoing, to conduct this research, the following questions were asked: how is infection prevention done in private outpatient settings in Porto Alegre, Brazil? What are the needs of these outpatient settings regarding infection control? The objective of the study was to survey the actions that exist in private outpatient health services regarding infection prevention for patient safety.

METHOD

This is a descriptive exploratory study conducted in private clinics in the city of Porto Alegre (RS), Brazil, between August and October 2017. This type of clinic was chosen because most of them do not receive infection control orientation from hospitals and seek to adaptindependently.The sample contained 14 outpatient private settings, outside hospitals, with increased risk of infection. The surveyedsettings were: surgical clinics, oncology clinics, endoscopy clinics, dialysis and radiation therapy with contrast exams. In this study, settings linked to a hospital or receiving infection control orientation from a hospital were excluded.

Samples were selected through the electronic search of outpatient clinics located in the urban area of Porto Alegre and that had the specialties described above. In this search, a total of 44 clinics were identified. The first contact was by telephone, to check whether the setting performed risky procedures and had no relationship with any hospital. In this process, 15 clinics were excluded. Afterward, visits and telephone contacts were made to schedule an appointment with the person responsible for the clinic and discuss the participation of the setting in the research. The responsible person confirmed participation with the signature of the consent form and appointed a professional for the interview. Of the 29 professionals responsible for the clinics who received an invitation to join the research, 15 refused to participate, and we were left with 14 participating clinics. Thirteen nurses and one owner-physician were interviewed.

The interviews were conducted after the project was approved by the Research Ethics Committee (CEP) of the Federal University of Health Sciences of Porto Alegre, under CAAE 67934117.1.0000.5345. All the work was explained to the participants, the research objectives were clarified and the informed consent terms were signed.

Data were collected in a structured questionnaire with open-ended and closed-ended questions. First, open-ended questions were asked with the intention of exploring the topic. The open-ended questions were recorded and later transcribed

into an electronic program. The closed-ended questions included the identification and certification data of the setting, the existence of an Infection Control Commission (ICC), specific meetings recorded in minutes, formulation of result and process indicators, and training to improve care and prevent infections. The questionnaire also addressed actions like availability of hand hygiene equipment (HH), safe injection routines (SI), provision of personal protective equipment (PPE), routines and guidance for cough etiquette routines and multiresistant germ control (MRG), routines, products and training for article processing and environmental cleaning and disinfection. This instrument was based on the checklist of the Guide to Infection Prevention for Outpatient Settings of the Centers for Disease Control and Prevention (CDC) and evaluated by two infection control specialists[4]. No validation process was performed.

The data from the closed-ended questions were entered into an Excel spreadsheet and the analysis was described using simple percentages, presented as a chart. The data from the open-ended questions were addressed by Bardin's content analysis[18]. After we read the transcribed material, a large map was made with the selections of all the statements,to identify the registration units (RU). This treatment of results enables the organization of data in categories and subcategories, which reduce the significant elements of all material and enable the theoretical reconstruction of the analyzed data[19]. In the results, selections of the respondents' statements are identified by the letter "S", for "subject", followed by an Arabic number, which corresponds to the order of the interviews.

RESULTS

Regarding the profile of the 14 settings we surveyed, four were surgery clinics (one general surgery and three eye surgery); four oncology clinics; three endoscopy clinics; two dialysis clinics; and one radio imaging clinic with contrast-enhanced CT scan and MRI. All settings were private and served medical insurance and private patients. The frequency of health surveillance inspections to update the license was yearly, except for dialysis services, where it was half-yearly. The frequency of training in infection prevention in the settings was diverse: three had monthly training, three bimonthly, one quarterly, five half-yearly and two yearly. Although all settings oriented patients to return to the clinic if there was any post-procedure infection, only nine (64%) monitored and assessed infection rates. The oncology clinics stood out positively in maintaining infection prevention actions.Chart 1 shows the actions that were maintained by the settings for infection prevention.

The major nonconformities we found were related to the lack of monitoring of infection prevention practices for the production of indicators. The fact was observed in the practice of HH, SI and use of PPE. Regarding respiratory hygiene/cough etiquette, we found that there are few settings that maintain a routine and train their staff and users to prevent the transmission of respiratory diseases. This shortcoming was also noticed in the identification of patients possibly infected/colonized with MRG and other infectious syndromes, for the enforcement of transmission blocking measures. We observed that the sterilization process is outsourced in half of the settings and, of these, only three monitor the biological indicator and know its frequency. The highest levels of compliance were found in the routines, products and training for the processing of health articles and in environmental cleaning and disinfection, as well as in the accident routines after exposure to biological material, waste management and laundry.

The categorization resulting from the RU of the open-ended questions was done according to thematic similarities, resulting in four categories and 19 subcategories, as shown in Chart 2. In parentheses there is the total RU found in the respondents' statements.

The Education category stood out, as it presented a high number of RU, as expressed in the following statements:

> We hold meetings with the teams. Our education meetings are our training sessions. Everyone who participates in the process does training sessions. Once a month, we have a meeting. This continuing education is a must-have and they address the main areas of each topic (S4).

> But I still think we need something simple, which is to have more training, to do more training... Closing the clinic to do internal training with everyone is difficult. But we can improve that. Improve training, make time to do it. We have to organize ourselves (S10).

Subjects attach importance to education in service to train employees and promote greater safety for them and their patients. To stay updated, they resort to congresses, the internet and scientific papers. They talk about the need for more training and claim lack of time and organization to meet this demand, but they consider education at work an important strategy to improve the service.

The second category is called Prevention and has HH as its main subcategory, with great importance to this content. The statements express its relevance:

> Handwashing and raising people's awareness. Awareness is the hardest thing to address, but it is also the basics (S7).

> [...] we can make people comply with this key measure, which is hand hygiene. All professionals who come to the institution receive training in HH and, during the year, in two occasions, we do training with them. In May we do the HH (S9) campaign from the ministry.

Subjects express their difficulty in increasing compliance with HH and see the importance of raising awareness to implement

Chart 1. Infection prevention actions implemented in private outpatient settings. Porto Alegre, RS, Brazil, 2017.

Administrative action	Number of settings (N)	Percentage of settings (%)
Holda health permit	14	100
Maintainan ICC	5	36
Holdmeetings	5	36
Keepa written infection control program	10	71
Do infection control training	14	100
Orientation to report infections	14	100
Calculate infection rate	9	64
Technical actions		
Make hand sanitizer available	14	100
Calculate compliance rate with HH	2	14
Have written guidelines for safe injection	10	71
Calculate safe injection compliance rate	1	7
Provide PPE	14	100
Calculate PPE usage rate	0	0
Detectmultiresistant germ carriers	5	36
Have written guidelines on healthcare product processing	14	100
Use enzymatic detergent	14	100
Do sterilization in the setting	7	50
Outsource sterilization	7	50
Monitorthe biological indicator	10	71
Do training about processing	14	100
Have written guidance on cleaning and disinfecting the environment	14	100
Do environmental cleanup training	14	100
Maintaina routine after biological occupational accident	5	36
Monitorstaff vaccination	14	100
Have a waste management plan	14	100
Outsource the laundry	14	100
FollowAnvisa guidelines	14	100

ICC: infection control committee; HH: hand hygiene; PPE: personal protective equipment; Anvisa: National Health Surveillance Agency.

the practice effectively. One of the clinics uses interns to monitor the practice of HH, and the data collected by them are later applied to the training sessions. Still in the Prevention category, the other subcategories, called Materials, Processing of health products and Environment, appear as important precautions in the prevention of infections:

> [...] we always strive to offer the best in terms of disposable materials and material sterilization. Today we only sterilize the instrumental part. The materials are all disposable. Disposable fields, disposable aprons, we are very careful about the material (S3).

> We use good products, we use good material... We use the chemical and biological integrators, we do the Bowie & Dick, our soap is state of the art. Of course all this adds to the cost. It is a very high cost. But its benefit is to avoid this issue of infections (S4).

There was a strong concern about the destination of equipment and products, especially disposable ones, to achieve safer and more convenient care. The high cost is warranted by the prevention of the major damage, which is infection.

The third category, called Surveillance, had the following subcategories represented in the statements: Processes, Control, Indicators, Legislation and Feedback.

> There is no indicator to guarantee a hundred percent of what we do. What we actually do is the daily control and assessment of employees and training. Now I can't say we do have an indicator... Even because all the work is done manually, based on trust. We do all the cleaning and disinfection manually. What we intend to implement is something to guarantee that this process is effective (S13).

> What I still plan to implement is the monitoring of what we already do. That would be a big step, with all the measures we already have in place. It would be giving feedback to

Chart 2. Categories, subcategories, and record units emerged from interviews with representatives of outpatient health clinics. Porto Alegre, RS, Brazil, 2017.

Category	Subcategory	Record units
Education (169)	Training (79)	Training (36); Team meeting/talks (17); Training/orientation (15); Continuing education (7); Awareness (4)
	Human resources (39)	Team/colleagues (14); Suppliers (10); Service providers (8); Employees (7)
	Scientific events (37)	Congresses (13); Lectures (6); Information (6); Encouraging knowledge (6); Campaigns (3); Updates (3)
	Internet publications (14)	Scientific publications/papers (10); Internet (4)
Prevention (120)	Hands (42)	Hand washing (21); Hand hygiene (17); Hand sanitizer (4).
	Materials (40)	Products (13); Disposable materials/material (9); Physical barriers (7); PPE (6), Catheter (5)
	Healthcare product processing (30)	Sterilization (13); Material cleaning (10); Disinfection (7)
	Environment (8)	Environment cleaning (8)
	Processes (31)	Processes (14); Routines (7); Standards (5); SOP (5)
Surveillance (98)	Control (24)	Control (20); Observation (4)
	Legislation (18)	Anvisa (7); Legislation (6); Documentation (5)
	Indicators (15)	Indicators (6); Tracking (4); Monitoring (3); Rates (2)
	Feedback (10)	*Feedback(7); Return (3)*
Infection control (88)	Importance (43)	Infection control (26); Very important (17)
	Safety (25)	Minimizing risk and damage (13); Patient safety (12)
	Quality (20)	Quality of service (12); Cost (8)

PPE: personal protection equipment National Health Surveillance Agency; SOP: standard operating procedures.

> raise employees' awareness so that they could effectively practice all infection control measures, because we know that not everyone washes their hands as they should (S14).

In the excerpts of the statements above, we see the need to identify the critical processes of the institution and start monitoring them, which should be translated into indicators. They have the intention to monitor processes and use performance data to give feedback in training sessions and raise awareness. This assistance assessment will indicate what needs to be fixed and informed in the feedback to the employees.

The last category that emerged was Infection Control, with the following subcategories: Importance, Safety and Quality. Here are some related statements:

> Infection control is of the utmost importance, mainly because it is associated with patient risk and service quality. We talk a lot about this in the patient safety nucleus and there we exchange a lot of information and ideas with the infection control team (S9).

> [...] we have infection control schedules, we even participate in the Brazilian patient safety program and one of the aspects that we assess is related to catheter infections, which is directly associated with infection control and hand hygiene (S13).

> Nurses are largely responsible for this part of infection control. We always try to do everything according to the legislation. Based on what is told and provided to us, we try to do our job by reducing infection levels to the limit (S14).

In these statements, it is observed that the settings associate infection control with safety and quality of care. Nurses are indicated as the professionals who can be responsible for infection prevention actions and engaging in the safety culture. It is observed that two settings have already established a safety nucleus or program on the topic of infection prevention.

DISCUSSION

In Brazil, the legislation on infection control is aimed at hospitals, pursuant to Law n. 9.431 of January 6, 1997, Ministerial Ordinance n. 2.616 of May 12, 1998, and Collegiate Board Resolution (RDC) n. 48, of June 2, 2000[10]. Outpatient health settings need to adapt these recommendations to develop their program and their infection prevention and control actions. This study shows a small number of clinics that maintain an active ICC and estimate the infection rates of the procedures they perform. This may be related to the fact that current legislation and health surveillance activities prioritize hospitals due to their complexity. Up-to-date legislation framing outpatient health settings would promote a broad redefinition of actions in these settings. The inspections done by health surveillance are fundamental for the settings to maintain their structures and equipment in compliance with infection prevention actions.

HH-related data show that all settings have dispensers with hand sanitizers, but only two monitor compliance with the practice during care. A recent American outpatient study found failures in HH among the main infection prevention measures[20]. This study identified, in 330 records of HH, that

33.9% of professionals used alcohol-based products, 29.1% used water and soap and 37.0% did not sanitize their hands at the indicated times. Observation of HH behavior is recommended, since high levels of infrastructure adequacy and HH training do not guarantee compliance with the practice[20]. Behavioral surveillance and the use of indicators to give feedback to the employees is the strategy that has ensured greater compliance and quality of service[20]. To address this demand, in 2013 the National Health Surveillance Agency (Anvisa) published the "Protocol for the Practice of Hand Hygiene in Health Services", which indicates the observation of the five moments of HH at the care setting and shows how to perform the indicators of compliance with HH and consumption of alcoholic solution and soap[21,22].

Indicators are measures that reveal information about a certain attribute and enable us to learn whether a certain objective is being met or not. Furthermore, the use of indicators makes it possible to measure and monitor the quality of the services provided. Thus, rates of infection and compliance with HH are considered indicators of quality and patient safety performance in health organizations[23].

Regarding SI, most settings claim to have written guidelines and do training, but only one outpatient setting we studied monitors compliance with this practice. In a study[20] with 163 SI observations, no prior HH was observed in 29 (17.8%) injection preparations, and of these observations, 14 (48.3%) did not have the vial rubber capdisinfected prior to puncture for access to content.The analyses of the cited study suggest that there is an association between the detected nonconformities and the various safety elements that were verified[21]. Only studies based on process monitoring can add knowledge about the reality and indicate the improvements that should be made and where to focus the staff's efforts.

All clinics provided PPE used to block germ transmission, but none monitored compliance with its use. Hoffman-Roberts et al.[24] studied laboratory samples to identify MRG circulation in 346 American hospitals. Samples that grew carbapenem-resistant enterobacteria were isolated from 0.5% of outpatients, 1% on admission and 2% in inpatients. A major public health problem worldwide is the emergence and spread of microbial resistance[24]. The transmission and proliferation of these microorganisms are due to several factors, such as patient vulnerability, whether because of disease or invasive procedures, and non-compliance with good prevention practices, favoring cross-transmission[25]. Strict use of PPE in standard precautions can safely ensure preventive practices regarding MRG and respiratory transmission diseases. However, patients with clinical syndromes without an established diagnosis are often found in outpatient settings and deserve appropriate screening. Teams should develop and program systems for early detection and management of potentially infectious patients at the entry points to the facilities[4,12].

The data related to article processing, occupational health, clothing processing and waste management showed that the services are adapted to the standards with equipment, products and training. This may be justified by demanding health inspection and well-established labor legislation, but the services do not monitor the practices to assess the effective compliance with the recommendations and, consequently, the quality of care provided in that setting.

As for the cleaning and disinfection of the environment,only five (36%) settings did follow-up of employees after training to certify their competence in performing the task. The strategy of real-time monitoring of cleaning professionals significantly reduced the contamination of surfaces and followed the recommendations of international and national infection control institutions[26]. According to the São Paulo Association of Epidemiology and Infection Control Related to Health Care[27], participative and creative educational strategies are indicated to develop competences. To provide safe and effective care, healthcare professionals, in their multidisciplinarity, need to master infection prevention expertise and incorporate it into their practice. Therefore, training and updating should be part of the daily routine of any setting that pursues quality care and patient safety[28].

The importance given to the category of Education in this research fits with what is found in the theory. Continuing Health Education is a participative management strategy for the conduction of qualified healthactions. Human resources are the greatest asset of the organization and, by providing for continuing education, the personal and professional needs of these workers are met[29]. Health services are collective education spaces where participation integrates people and promotes the building of new knowledge, based on the practices experienced at work, thus qualifying it.The application of participatory methodologies based on dialogue favors the building of knowledge among the professionals, making them committed and integrated to the work team[30,31].

In the Surveillance category, there is a need for settings to monitor and evaluate the care processes performed to improve quality. Management is currently based on indicator analysis, and a surveillance program should be implemented to support an infection prevention system[32]. In this study, nine settings calculated their infection rate, two performed the HH compliance rate calculation and one evaluated its SI practices. Outpatient settings have to make much progress in terms of management to improve patient safety and quality of care. To engage in the worldwide movement for patient safety, such settings must plan andmonitorkey processes and calculate indicators that measure quality of care.

The last category, Infection Control, reflects the concept of safety. In two researched settings we found safety nuclei, which demonstrates organization of the settings and their engagement in the patient safety culture to achieve quality improvement. This is the path taken by more organized clinics.Safetygoals are adopted around the world to provide qualified care, ensuring safety for patients, healthcare professionals and institutions that provide healthcare. In Brazil, they are presented in RDC n. 36,

of July 25, 2013[33]. HAI are considered AE, but the vast majority of AE have no infectious cause and are not usually identified in institutions. The millennium began with the confirmation that healthcare is one of the most hazardous human activities and, to learn the extent of the occurrences, scientific methodology and epidemiological investigation should be applied in systematic identification, monitoring and notification of AE[33].

In the study, it was observed that the respondents attached great importance to infection prevention actions to provide safe and quality care. They considered education a path to successful results. In the analysis, only oncology clinics seemed more organized in the use of process indicators like compliance with HH and SI care. Clinics in general have shown greater adequacy in material structures, as seen with hand sanitizer dispensers, PPE distributionand health product processing. As for the monitoring of practices for the achievement of outcome indicators and processes, much has to be improved in the services we studied to keep up with the international movement of safety culture in health institutions.

In this study, only one third of the invited clinics agreed to participate. This resulted in a low number of surveyed settings, which can be considered a limitation. The settings that agreed to participate probably felt like they were able to respond favorably to the questions. Participation in the research creates an opportunity for improvement and contribution with new knowledge on a topic with few published studies. Based on the results of this research, it was possible to prepare a Manual of Infection Prevention in Outpatient Settings,addressing the needs we found, which include not only technical interventions, but also education and surveillance actions of care processes and outcomes, thus contributing to the safety and quality of these settings.

CONCLUSIONS

The study enabled us to learn more about the actions adopted in outpatient settings to prevent HAI. Overall, the clinics proved to be appropriate in their actions regarding infrastructure by making materials, equipment and products available for good practices. As for the existence of written routines and training, they also showed adequacy according to health requirements. However, there is low compliance with the monitoring of processes and results for the design of indicators like infection rates, rates of compliance with HH and the use of PPE and rates of adequacy with SI practices. There is a need to improve the monitoring and evaluation of care processes in order to learn more and enhance the quality of the service. It is known that the physical structure is fundamental for healthcare, however it does not guarantee good practices by itself. The monitoring of internal processes and results, with the feedback of indicators to the teams, may help raise awareness about the reality and propose changes and improvements. Infection prevention actions implemented in these settings stand out in a demanding market and engage them in the worldwide movement for patient safety and quality of care. The safety culture is a new challenge that arises in the daily routine of healthcare settings, including outpatient settings.

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Conflict of Interest

Authors have no potential conflict of interest to declare, related to this study's political or financial peers and institutions.