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Barreras organizacionales en la gestión del conocimiento: consultorios odontológicos y el manejo de los RPBI

Organizational barriers in knowledge management: Dental offices and the handling of DBIW

Barreiras organizacionais na gestão do conhecimento: consultórios odontológicos e gestão de RPBI

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Resumen

La gestión del conocimiento es un trabajo fundamental en toda organización porque es el proceso que permite fundamentar el adecuado manejo de las actividades dentro de las empresas. Por tal motivo, el propósito de este trabajo fue identificar y analizar las barreras organizacionales en la gestión del conocimiento para el manejo de residuos peligrosos biológicos infecciosos en 60 consultorios odontológicos en Querétaro. Para ello, se aplicó a odontólogos que trabajaban en los consultorios seleccionados una encuesta constituida por 30 preguntas, la cual obtuvo una valoración α de 0.89. Los parámetros analizados fueron adquisición, uso y transformación del conocimiento, así como otros aspectos generales de los consultorios. Los resultados más

relevantes fueron los siguientes: 18 % de los consultorios invierte en la adquisición del conocimiento sobre el manejo de los residuos, de modo que falta capacitación continua de los encargados, ya que solo se les capacita en la inducción; asimismo, 60 % no maneja información a través de la red, 72 % no realiza innovación y 67 % no dispone de manuales de procedimientos; además, solo 45 % está dispuesto a compartir su conocimiento. Basados en estos datos, se sugiere fomentar la cultura organizacional, así como el interés y el compromiso con el medioambiente con la finalidad de minimizar el riesgo de contaminación.

Palabras clave: barreras organizacionales, consultorios odontológicos, gestión del conocimiento, residuos peligrosos biológicos infecciosos.

Abstract

Knowledge Management is fundamental in every organization. More than a simple trend, Knowledge Management lays the foundation for the use of adequate procedures in every company. There are current barriers that interfere with the acquisition, the use, and transmission of knowledge management. The objective of this work was to identify and analyze the organizational barriers of Knowledge Management in the handling of Dangerous Biological Infectious Waste within dental offices in Querétaro, which can lead to professional illnesses or environmental contamination if the waste is not handled properly.

Sixtyn dental offices in Querétaro were considered as part of this study. The dental offices were given a survey based on 30 questions that showed the Knowledge Management mechanism applied to the handling of waste. The instrument evaluation showed an α out of 0.89, which is appropriate for the study. The parameters analyzed were: acquisition, use and transformation of knowledge, as well as other general aspects of the dental offices. Some of the most relevant findings were: there are very few dental offices that invest in the acquisition of knowledge of handling waste and the lack of training for those in charge of handling waste, in the use of knowledge, 60% do not seek information on the internet, 72% do not seek out innovation, and 67% do not possess a procedural manual, in regards to the transmission of knowledge, only 45% are willing to pass it on. Based on the obtained data, the study suggests the use of facilitators, like

a culture of organization, interest and commitment to the environment, among others, with the goal of properly introducing knowledge and ultimately, minimizing the risk of contamination.

Keywords: organizational barriers, dental offices, knowledge management, dangerous biological infectious waste.

Resumo

A gestão do conhecimento é uma tarefa fundamental em qualquer organização, pois é o processo que permite basear o gerenciamento adequado das atividades nas empresas. Por este motivo, o objetivo deste trabalho foi identificar e analisar as barreiras organizacionais na gestão do conhecimento para o gerenciamento de resíduos perigosos biológicos infecciosos em 60 consultórios odontológicos em Querétaro. Para tanto, foi aplicada uma pesquisa com 30 questões aos cirurgiões-dentistas que trabalhavam nas clínicas selecionadas, que obtiveram uma avaliação α de 0,89. Os parâmetros analisados foram aquisição, uso e transformação de conhecimento, bem como outros aspectos gerais das práticas. Os resultados mais relevantes foram os seguintes: 18% das clínicas investem na aquisição de conhecimentos sobre a gestão de resíduos, de modo que há uma falta de formação contínua dos responsáveis, uma vez que são treinados apenas na indução; da mesma forma, 60% não lidam com informações através da rede, 72% não realizam inovações e 67% não possuem manuais de procedimentos; Além disso, apenas 45% estão dispostos a compartilhar seus conhecimentos. Com base nesses dados, sugere-se promover a cultura organizacional, bem como o interesse e comprometimento com o meio ambiente, a fim de minimizar o risco de contaminação.

Palavras-chave: barreiras organizacionais, consultórios dentários, gestão do conhecimento, resíduos perigosos biológicos infecciosos.

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Introduction

Knowledge management

Knowledge management (KM) is an administrative tool that allows to attract, integrate, use and transfer different types of information in a company (Valencia, 2013), which fosters processes necessary to create and develop collaborative work, as well as the vocation towards learning supported by a set of procedures, organizational structures, applications and technologies. This means that the GC serves to focus the efforts of an organization in the resolution of problems that affect the satisfaction of the client and the economic efficiency of the company (Menéndez and Vadillo, 2011), hence this concept has become a point central in companies, which seek to apply strategies that allow them to increase the competition of their human capital and the development of innovation (Añez and Nava, 2009). Even so, it is worth noting that this purpose can not always be achieved due to different barriers that can prevent such knowledge from being developed and transmitted in an optimal way (Audiffred and Escamilla, 2016).

Barriers to knowledge management

They can be considered as barriers to knowledge management to all those limitations or restrictions of various kinds that prevent the achievement of certain goals and objectives organizations. Therefore, it is essential to know them in order to convert them into opportunities that generate a competitive advantage (Pérez and Cortés, 2007). This task, of course, is not simple because it usually depends on multiple variables, among which the following stand out: a) strategic factors (leadership, roles and responsibilities, rewards and recognitions), b) cultural factors (company culture) and c) technological factors (technology development, human capital formation, internal business processes) (Mas y Martínez, 2009).

These barriers are closely related to the way the company is organized, so if it is rigid or inflexible, it is most likely that the GC does not flow due to conditions such as:

- Lack of clear and well-defined strategy.
- Absence of mission.
- Values not established or not reported.
- Lack of leadership.
- Poor training and education.
- Training of personnel in regulations.
- Technology management and disposition.
- Apathy to acquire and receive knowledge.
- Difference between actions and management communication.
- Cultural resistance of both people and the organization.
- Technological immaturity (that is, little or no training in the use of technology).
- Immaturity of the organization, characterized by the lack of organizational planning.
- Lack of GC project vision.

Having explained the above, it can be indicated that it is essential that companies master the knowledge related to organizational learning, as this will allow them to consolidate their competitive processes (Pérez and Cortés, 2007).

Barriers to knowledge management linked to the handling of hazardous biological infectious waste

GC acquires special importance insofar as processes are identified, measured and exploited in knowledge. In this sense, the company deals with strategies, processes and technologies to capture, store, share and ensure the understanding of knowledge. Therefore, among the activities in the work of the CG in the management of hazardous biological infectious waste (RPBI) can be mentioned the following:

- Develop systems and processes in the management of waste.
- Create knowledge bases (directory of experts, databases, etc.).
- Develop knowledge centers (points of cognitive abilities and facilitators of knowledge flows).

- Instruct in the use of technologies.
- Organize networks of experts.
- Create a learning mechanism that allows continuous improvement (Audiffred, 2017).

Management of infectious biological hazardous waste

The management of the RPBI is based on procedures established by the Ministry of Health, which stipulate the manner in which such wastes should be classified, separated, neutralized and eliminated. In this sense, the Official Mexican Standard (NOM, 084) establishes that RPBI must be treated through physical or chemical methods that guarantee the elimination of pathogenic microorganisms and then be disintegrated and deposited in authorized places. In this sense, the Ministry of Labor and Social Welfare (STPS) also obliges the companies that handle this waste to provide continuous training to personnel who have contact with them.

In Mexico, companies in the health area generate 149 213 tons of RPBI, of which 21 690 are produced in Querétaro (Ministry of Environment and Natural Resources [Semarnat], 2014), a state that only has one company that can treat 913 tons of this waste through the ex situ technique (Semarnat, 2012). The rest of these wastes are sent to other states or thrown into municipal landfills, where they are usually handled without any previous neutralization.

For these reasons, the purpose of this research was to determine the organizational barriers related to knowledge management that prevent adequate management of RPBIs that are generated in dental offices of the city of Querétaro.

Methodology

Research strategies

The present investigation was based on the quantitative and non-experimental approach of the transactional type. Likewise, it can be located in the correlational-causal category, since there have been attempts to describe the relationships between several characteristics at a given time, so that the degree of association that exists between them can be quantified (Hernández, Fernández and Baptista, 2010).

Knowledge management conceptual instrument

In the exploratory study carried out by Mejía and González (2007), a conceptual instrument is proposed in which three latent or main variables are defined, as well as observed variables that seek to identify the knowledge management construct. In this exploratory instrument, the following organizational elements facilitating knowledge are identified: knowledge generation, internal transfer, knowledge integration and use of knowledge (table 1). This instrument is made up of 30 items that integrate the different categories of indicators. The assessment of the instrument was made through the Cronbach alpha test, which resulted in 0.879. Of the 220 dental surgeries registered in Querétaro that constituted the population (National Institute of Statistics and Geography [Inegi], 2014), a sample n was calculated, which allowed selecting only 60 clinics.

Tabla 1. Variables que identifican la gestión del conocimiento en la empresa

Variables	
Generación del conocimiento	Adquisición externa del conocimiento Creación interna del conocimiento Mecanismos formales Mecanismos informales
Transferencia interna del conocimiento	Mecanismos de soporte tecnológico Mecanismos formales
Integración del conocimiento	Cultura organizacional para crear conocimiento Estilo directivo para crear conocimiento Motivación del personal técnico
Uso del conocimiento	Distribución física Cultura organizacional para transferir conocimiento Estilo directivo para transferir conocimiento Cultura organizacional para integrar el conocimiento Disponibilidad de tiempo para integrar conocimiento Resistencia del emisor Confiabilidad del emisor

Fuente: Elaboración propia a partir de Mejía y Cornejo (2010)

Application of the instrument

The designed survey, consisting of 30 items (table 2), was applied to the dentists in charge of the 60 offices that made up the sample:

Tabla 2. Encuesta aplicada a los odontólogos de los 60 consultorios seleccionados

I Datos generales
1. Número de trabajadores en la clínica.
2. Tiempo de funcionamiento del consultorio.
3. Se realiza la separación del residuo odontológico.
4. Elimina los punzocortantes en contenedores rígidos.
5. El personal conoce la rotulación del material de envasado.
6. Cuenta con área para almacenamiento temporal de los RPBI.
7. Cantidad de RPBI generados al mes.
8. Periodo máximo de almacenamiento de los RPBI.
9. Los RPBI generados son enviados a:
10. La persona que maneja los RPBI utiliza equipo de protección.
11. Se cuenta con autoclave para esterilizar los RPBI.
II Datos organizacionales
12. Posee una bitácora para registrar los RPBI.
13. Invierte en la adquisición de bibliografía en el manejo de los RPBI.
14. Invierte en capacitación en el manejo de los RPBI.
15. Los cursos de capacitación en el manejo de los RPBI se dan:
16. Invierte en equipos de cómputo para adquirir conocimiento.
17. El consultorio invierte en bases de datos.
18. El consultorio invierte en motivación.
19. Elaboran manuales de procedimiento para el manejo de los RPBI.
20. Se tienen reuniones para discutir información acerca del manejo de los RPBI.
21. El consultorio apoya la transferencia del conocimiento en la realización de proyectos.
22. El consultorio apoya la programación de reuniones de trabajo donde se transfiere conocimiento.
23. Se comparte documentación a través de la red.
24. Se cuenta con una página web corporativa.
25. Se cuenta con políticas ambientales en sus objetivos, misión y/o visión organizacional.
26. El personal encargado de los residuos recibe capacitación con cursos o talleres.
27. Se motiva en la creación e innovación de técnicas en el manejo de los RPBI.
28. El consultorio destina tiempo para que el trabajador integre el conocimiento adquirido en su trabajo.
29. Los trabajadores están dispuestos a transmitir los conocimientos adquiridos a sus demás compañeros.
30. Los miembros del consultorio conocen la NOM 087 relacionada con el manejo de los RPBI.

Fuente: Elaboración propia a partir de Mejía y Cornejo (2010)

Once the survey was applied, the statistical analysis was carried out using the SPSS program.

Results and Discussion

The most relevant results are shown below:

Acquisition of knowledge

In relation to the variable acquisition of knowledge, the following organizational barriers were found:

Tabla 3. Barreras en la adquisición del conocimiento

Inversión en	Sí invierte	No invierte
Bibliografía de los RPBI	18 %	82 %
Capacitación en manejo de los RPBI	27 %	73 %
Equipo de cómputo	83 %	16 %
Bases de datos	73 %	27 %

Fuente: Elaboración propia

As can be seen in Table 3, the clinics invest mainly in general databases, and only 18% in terms of RPBI. Likewise, it is observed that 73% do not invest in training courses in the management of RPBI, since they only apply basic training in worker induction.

Use of knowledge

In this variable the following organizational barriers were found:

Tabla 4. Barreras organizacionales en el uso del conocimiento

	Sí	No
Tienen manual de procedimientos en el uso de los RPBI	36 %	67 %
Tienen página web corporativa	43 %	57 %
Manejo de información a través de la red	40 %	60 %
Innovación en técnicas en el manejo de los RPBI	28 %	72 %
Disponibilidad de tiempo para asimilar conocimiento	45 %	55 %

Fuente: Elaboración propia

Table 4 shows that the use of knowledge in the management of RPBIs is basic, since only established procedures are regularly carried out and there is no interest in innovating, creating or using the available information.

Knowledge transfer

When a company has acquired certain knowledge it is essential to be able to transmit them, because in this way benefits can be obtained at all levels (economic, technological, professional, etc.) both inside the company and abroad.

Tabla 5. Transferencia del conocimiento.

	Si	No	Algunas veces
Compartición del conocimiento entre los trabajadores	45%	3.3 %	51.7%
Transfieren conocimiento de proyectos realizados.	66%	34%	
Realizan reuniones para transmitir el conocimiento	51%	49%	

Fuente: Elaboración propia.

In this sense, and according to the data collected (table 5), it can be indicated that among workers there is a positive tendency (45%) to share knowledge, although it is also observed that 51.7% sometimes transmit it and 3.3% do not. It does, which is common to happen because of fear that another more capable person may take up his job. Likewise, it is worth mentioning that two thirds of the clinics support the transfer of knowledge in completed projects. In fact, half of these hold meetings to promote this goal.

General data

The main general data collected were the following:

- The operating time of the offices surveyed ranges from 1 to 30 years, although most of them (43%) are between 6 and 10 years old, while 17% are between 16 and 20 years old.
- On the other hand, 97% of the clinics are small waste generators (between 2.5 kg / month and 25 kg / month).

- Only 5% of the clinics do not separate the waste and are directed directly to the municipal landfill; the rest neutralize them before sending them to those deposits.
- Sharps are properly disposed of in all offices.
- Likewise, in 21% of the clinics there is no temporary storage of waste, so they are eliminated daily. However, those that do have a warehouse store this waste throughout the month until it is picked up by the recycling company.
- Regarding the knowledge of the regulations in the handling of RPBI, it was found that some know it (35%), all know it (26%), and 3% do not know it.

Finally, when performing the Spearman correlation coefficient (CCS) test, the following was found:

- The greater the number of years of operation of the office, the lower the training in the management of the RPBI.
- The greater the number of years of operation of the office, the lower the technological investment.

Conclusions

Knowledge management is a necessary tool in organizations because it adds value and increases their competitiveness. However, in the specific case of CG in the management of hazardous biological infectious waste in the clinics studied, some barriers were found that prevent knowledge from being acquired, used and transferred appropriately. Therefore, the following conclusions can be offered:

Continuous training is necessary, the offices must schedule courses in the management of the RPBI among their staff. It is essential to acquire bibliography in the handling of RPBIs and to carry out activities so that all personnel have access to it. Regarding the policies, mission and value of the clinics, issues of environmental protection should be included.

There is a resistance to change in the offices that have more seniority. In addition, there is limited interest on the part of dentists in the acquisition, use and transmission of knowledge in the management of RPBIs. There are facilitators who can help the acquisition, use and

transformation of knowledge in the clinics studied. In this sense, and based on the foundations of the organizational culture, these people can modify personal characteristics, attitudes, work style, behaviors and work environments. In fact, with the improvement of the physical infrastructure, management style can be optimized by fostering an atmosphere of commitment and by promoting improvement projects.

Knowledge must be generated from the productive use of technology and the information media. Likewise, staff must be motivated to be interested in these contents, since a person with greater knowledge can offer better solutions to problems.

Most of the clinics studied are small RPBI generators per month, as they usually do not produce more than 25 kg / month of this type of waste, for this reason it is necessary to modify the regulations so that small waste producers can be included.

The foundations of this work can also be applied in veterinary offices, beauty centers and tattoo parlors, which also handle this type of waste.

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