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Elaboration and evaluation of a compulsory notification form for human sporotrichosis[a]

Elaboração e avaliação de uma ficha de notificação compulsória para a esporotricose humana

Elaboración y evaluación de un formulario de notificación obligatoria para la esporotricosis humana

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Resumo

Objetivos: elaborar e avaliar uma ficha de notificação compulsória para a esporotricose humana. **Métodos:** estudo metodológico desenvolvido em duas etapas: elaboração do conteúdo teórico e construção da ficha de notificação e avaliação da ficha de notificação realizada por juízes, por meio de painel *Delphi online*, no período de julho a setembro de 2020. Entre os juízes, incluíram-se médicos, enfermeiros, biólogos e médicos veterinários, que atuavam na Atenção Primária à Saúde, com experiência mínima de dois anos na área de Epidemiologia e/ou Infectologia, Saúde Pública e Atenção Básica. Para a avaliação do conteúdo teórico, utilizou-se a escala tipo *Likert* de três pontos modificada e adaptada, sendo considerada aceitável uma taxa de concordância de 80%. **Resultados:** a ficha foi dividida em sete categorias, sendo estas: dados gerais; notificação individual; dados de residência; antecedentes epidemiológicos; dados clínicos; hospitalização e conclusão, contendo 59 variáveis e 151 itens. **Conclusão e implicações para a prática:** a ficha de notificação será um instrumento de comunicação, fornecendo dados para a orientação técnica de profissionais de saúde, para a recomendação das medidas de controle, promoção das ações, avaliação da eficácia e efetividade das medidas adotadas e divulgação de informações.

Palavras-chave: Epidemiologia; Esporotricose; Notificação Compulsória; Saúde Pública; Vigilância Epidemiológica.

Abstract

Objectives: to develop and evaluate a compulsory notification form for human sporotrichosis. **Methods:** a methodological study developed in two stages: preparation of the theoretical content and construction of the notification form and evaluation of the notification form performed by judges, through an online Delphi panel, from July to September 2020. The judges included physicians, nurses, biologists, and veterinarians, who worked in Primary Health Care, with a minimum experience of two years in Epidemiology and/or Infectology, Public Health, and Primary Care. For the evaluation of the theoretical content, we used the modified and adapted three-point Likert scale, and an 80% agreement rate was considered acceptable. **Results:** the form was divided into seven categories, being these: general data; individual notification; residence data; epidemiological background; clinical data; hospitalization and conclusion, containing 59 variables and 151 items. **Conclusion and implications for practice:** the notification form will be a communication tool, providing data for the technical orientation of health professionals, for the recommendation of control measures, promotion of actions, evaluation of the efficiency and effectiveness of the measures adopted, and dissemination of information.

Keywords: Epidemiology; Sporotrichosis; Compulsory Notification; Public Health; Epidemiological Surveillance.

Resumen

Objetivos: desarrollar y evaluar un formulario de notificación obligatoria para la esporotricosis humana. **Métodos:** estudio metodológico desarrollado en dos etapas: elaboración del contenido teórico y construcción del formulario de notificación y evaluación del formulario de notificación realizado por los jueces, a través de un panel *Delphi* en línea, de julio a septiembre de 2020. Entre los jueces, se incluyeron médicos, enfermeros, biólogos y veterinarios, que actuaban en Atención Primaria de Salud, con un mínimo de dos años de experiencia en el área de Epidemiología y/o Enfermedades Infecciosas, Salud Pública y Atención Primaria. Para evaluar el contenido teórico, se utilizó una escala de *Likert* de tres puntos modificada y adaptada, considerándose aceptable una tasa de acuerdo del 80%. **Resultados:** el formulario fue dividido en siete categorías, a saber: datos generales; notificación individual; datos de residencia; antecedentes epidemiológicos; datos clínicos; hospitalización y conclusión, con 59 variables y 151 ítems. **Conclusión e implicaciones para la práctica:** el formulario de notificación será una herramienta de comunicación, proporcionando datos para la orientación técnica de los profesionales de la salud, para la recomendación de medidas de control, promoción de acciones, evaluación de la eficacia y efectividad de las medidas adoptadas y difusión de informaciones.

Palabras clave: Epidemiología; Esporotricosis; Notificación obligatoria; Salud pública; Vigilancia epidemiológica.

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INTRODUCTION

Sporotrichosis is a sub-acute or chronic mycotic infection characterized by polymorphic lesions of the skin and subcutaneous tissue caused by dimorphic and geophilic fungi belonging to the *Sporothrix complexo schenckii*.[1] Since 1998, it has become a public health problem in Brazil due to the significant increase of cases in humans.[2]

It stands out as an endemic fungal disease whose etiological agents are widely distributed in the environment and is caused by traumatic implantation of the fungus *Sporothrix schenckii sensu lato* into the skin.[3] It can affect humans of both sexes, of any age group or race, regardless of individual predisposing factors.[3,4]

Transmission is correlated primarily to agricultural activities, gardening, and contact with cats infected with the fungus. The etiologic agents thrive in soil and decaying vegetation, wood, moss and corn sticks.[3,4] Studies have revealed that cats are the only animals that have a significant zoonotic potential due to the high amount of yeasts found in lesions, thus facilitating transmission through contact.[5,6]

Brazil, as an endemic, tropical and subtropical risk area, has, in the states of São Paulo, Rio de Janeiro, Belo Horizonte and Espírito Santo, the largest production of studies on the epidemiology of human sporotrichosis. From 2003 to 2013, 25 cases of human sporotrichosis were confirmed in the State of São Paulo.[7] Between 2015 and 2017, 3,291 cases were confirmed in the state of Rio de Janeiro.[8] In Belo Horizonte, from 2016 to 2018, 121 cases were confirmed.[9] Between 2008 and 2012, in Espírito Santo, 171 cases were confirmed.[10]

However, there is little information about its prevalence and it was only with Administrative Rule No. 264, of February 17, 2020, that human sporotrichosis was included in the National List of Compulsory Notification of diseases, diseases and events of public health,[11] and the notification is done through the individual notification form. This instrument is filled out by the care units for each patient when there is suspicion of the grievance and, subsequently, forwarded to the Epidemiological Surveillance (ES).[12]

However, there is no specific notification form for human sporotrichosis, which makes it difficult for health professionals to communicate the occurrence to health authorities for the adoption of intervention measures, triggering the information-decision-action process.[13]

In light of the above, the objective of this study was to design and evaluate a compulsory notification form for human sporotrichosis.

METHOD

This is a methodological research with a qualitative approach. The research was developed in two stages: elaboration of the theoretical content and construction of the notification form, and evaluation of the theoretical content of the notification form.

For the elaboration of the content and construction of the notification form, the main information in the literature on human sporotrichosis was surveyed through manuals from the Ministry of Health, books, and publications of national and international associations.

The content evaluation was performed by judges, through online Delphi panel, in the period from July to September 2020. The Delphi technique is designated as a method used to deduce and refine the opinions of a group of experts in order to reach consensus of ideas. In the scientific literature, there is no established standard regarding the criteria for defining the number and characteristics of the judges. Thus, it is important to select health professionals who have clinical experience and theoretical knowledge on the subject.[14]

The group of judges was composed of physicians, nurses, biologists and veterinarians who worked in Primary Health Care with at least two years of experience in Epidemiology and/or Infectious Diseases, Public Health and Primary Health Care. The judges were selected through the researchers' network of contacts using the snowball sampling technique, which is, therefore, a convenience sampling. The judges received, by e-mail, an invitation letter with information about the study. Upon acceptance, the judge signed the Free and Informed Consent Form and received a virtual form in Google Form with two distinct sections to be filled out: characterization of the judges and evaluation of the theoretical content.

The form for characterization of the judges contained the following items: gender, age, time of professional education, professional degree, current area of work, and time of work in Epidemiology and/or Infectious Diseases, Public Health, and Primary Care. The second contained questions about the evaluation of the theoretical content of the compulsory notification form for sporotrichosis.

For the evaluation of the theoretical content of the notification form, a modified and adapted three-point Likert scale was used, allowing only one of the options to be marked: "Never relevant", "Sometimes relevant" and "Always relevant".

For the evaluation of the judges' level of agreement, the Percent of Agreement method was used, with an 80% agreement rate being considered acceptable.[15] The situations that presented lower agreement were reformulated, the suggestions were accepted, and the form was sent back to the judges for a new evaluation until it reached 80%.

The data analysis was carried out descriptively and, for tabulation and interpretation, the data collected was organized using the Microsoft Excel 2010 program and arranged in tables.

The study was approved by the Research Ethics Committee of the Cassiano Antônio Moraes University Hospital (HUCAM), of the Federal University of Espírito Santo (UFES), under CAAE no. 39008920.6.0000.5071, according to Resolution no. 466/2012.

RESULTS

Seventy-nine judges were invited to participate in the study. Twenty-five judges returned, three of whom informed that they are no longer working in the area, and 22 answered the survey instrument for analysis. Of the total number of participants, 77% (N=17) were female and 23% (N=5) were male. Regarding age,

41% (N=9) were between 30-40 years old and 32% (N=7), 51 years old and older. Regarding the area of professional activity, 41% (N=9) were from the Public Health area and 23% (N=5), from the Epidemiology area. Regarding the time in the area of current professional activity, 55% had between two and ten years. We noticed that 50% (N=11) had a doctoral degree, 32% (N=7) had a specialist degree and 18% (N=4) had a master's degree.

In the first round of the study, 56 variables with 134 items composed the instrument of the notification form, 106 items reached a percentage of agreement greater than or equal to 80% and 28 items had a percentage of agreement less than 80%, as shown in Chart 1. When considering the simple average of the 56 variables, only two variables had a percentage of agreement lower than 80%, which were the variables "Treatment time of the animal" and "Drug treatment received by the animal".

Regarding the judges' suggestions, it was suggested the exclusion of three variables, being these "Time of injury of the animal", "Time of treatment of the animal" and "Drug treatment received by the animal" and of seven items: "Mucosa", "Subcutaneous", "Back", "Anterior thorax", "Posterior thorax", "Back" and "Shoulder".

With reference to inclusion, it was suggested to include two variables, which were "Presence of comorbidities" and "Destination of the animal" and three items: "Head/face", "Surgical/chiropractic treatment" and "Other". There were also two suggested changes in the wording of the variables, which were "Drug treatment received" for "Treatment" and "Presence of animal at home with diagnosis of sporotrichosis" for "Has contact with animal" and six items: "Cutaneous" for "Cutaneous Disseminated", "Anterior Thorax and Posterior Thorax" for "Thorax" and the items "Free, Restricted and Ignored" for "Domiciliated, Semidomiciliated and With unrestricted access to the street".

Despite the items "ignored" and "does not apply" not reaching the Percentage of Agreement in all the variables of the instrument, these were maintained, since it is important to emphasize that these are fields that appear on the notification form and that, in a situation where there is no information about the variable, these items should be filled out (ignored and does not apply), according to the orientation of an instructive for filling out the notification form of the Ministry of Health.[16]

In Delphi Step 2, the instrument with the suggestions pointed out by the judges in Delphi Step 1 was resent, in which nine judges answered the questionnaire. In this second round, ten variables with 61 items made up the notification form instrument with the suggestions of the judges, where 39 items reached a Percentage of Agreement greater than or equal to 80% and 22 items had a Percentage of Agreement less than 80%, which were: "Knee", "Thigh", "Head/Face", "Month", "Year", "Fluconazole", "Ketoconazole", "Other", "Abandoned", "Buried", "Discarded", and "Ignored". When considering the simple average, five variables had an average lower than 80%, which were: "Time of injury to the animal", "Time of treatment of the animal", "Drug treatment received by the animal", "Street access", and "Destination of the animal", as shown in Chart 2.

The proposed changes were drafted and the content of the final version of the notification form for human sporotrichosis, as shown in Chart 3, was made up of seven categories, these being:

Chart 1. Variables of the instrument to evaluate the content of the compulsory notification form for sporotrichosis.

Variables		% concordance	Simple mean
General data			
Notification Date		100%	100%
Municipality of Notification		100%	100%
Health Unit (notifying source)		100%	100%
Date of First Symptoms		100%	100%
Individual notification			
Patient's name		86%	86%
Date of birth		95%	95%
Age		100%	100%
Sex	M - Male	100%	89%
	F - Female	100%	
	I - Ignored	68%	
Pregnant woman	1 1st Trimester	100%	84%
	2 2nd Trimester	100%	
	3 3rd Trimester	100%	
	4 Ignored gestational age	82%	

Source: the author.

Chart 1. Continued...

Variables		% concordance	Simple mean
	5 No	86%	
	6 Not applicable	64%	
	9 Ignored	55%	
Race/Color	1 White	86%	82%
	2 Black	86%	
	3 Yellow	82%	
	4 Brown	86%	
	5 Indigenous	86%	
	9 Ignored	64%	
Education	0 Illiterate	91%	93%
	1 1st to 4th grade, incomplete ES (primary or elementary school)	91%	
	2 4th grade, complete ES (primary or elementary school)	86%	
	3 5th to 8th grade, incomplete MS (middle school)	91%	
	4 Complete middle school (middle school)	91%	
	5 Incomplete highschool	91%	
	6 Complete highschool	91%	
	7 Incomplete higher education	91%	
	8 Complete higher education	91%	
	9 Ignored	59%	
	10 Not applicable	55%	
UHS Card Number		95%	95%
Mother's name		91%	91%
Residential Data			
Municipality of Residence		100%	100%
Neighborhood		100%	100%
Street address (street, avenue, etc.)		100%	100%
Number		95%	95%
Complement (apartment, house etc.)		100%	100%
Postal code		100%	100%
Phone number		100%	100%
Zone (Urban, Rural, Periurban, Ignored)		95%	95%
Country (if residing outside of Brazil)		100%	100%
Epidemiological Background			
Investigation Date		100%	100%
Occupation		100%	100%

Source: the author.

Chart 1. Continued...

Variables		% concordance	Simple mean
Exercise activity that results in constant contact with plants (gardeners, farmers, farm workers, tillers, etc.)	1 Yes	100%	80%
	2 No	82%	
	9 Ignored	59%	
History of injury, trauma, handling of plants or organic material	1 Yes	100%	80%
	2 No	82%	
	9 Ignored	59%	
Probable way of contagion	1 Environmental	100%	89%
	2 Animal	100%	
	9 Ignored	68%	
Nature of the contact with animal	1 Bite	100%	92%
	2 Scratch	100%	
	3 Contact with skin injuries	100%	
	9 Ignored	68%	
Clinical data			
Clinical aspects of the injury	1 Cutaneous	95%	91%
	2 Lymphocutaneous	100%	
	3 Fixed Cutaneous	100%	
	4 Widespread	100%	
	5 Mucous	95%	
	6 Extracutaneous	95%	
	7 Subcutaneous	82%	
	9 Ignored	59%	
Injury location	1 Lower limb	100%	94%
	2 Upper limb	100%	
	3 Back	95%	
	4 Torso	100%	
	5 Widespread	100%	
	9 Ignored	68%	
Inoculation point	1 Hand	100%	97%
	2 Foot	100%	
	3 Leg	100%	
	4 Forearm	100%	
	5 Arm	100%	
	6 Knee	100%	
	7 Thigh	100%	
	8 Face	100%	
	9 Anterior thorax	100%	
	10 Posterior thorax	100%	
	11 Back	95%	

Source: the author.

Chart 1. Continued...

Variables		% concordance	Simple mean
	12 Neck	100%	
	13 Shoulder	100%	
	99 Ignored	68%	
Treatment start date		100%	100%
Treatment time	1 Month	100%	88%
	2 Year	100%	
	9 Ignored	64%	
Drug treatment received	1 Potassium iodide	100%	94%
	2 Itraconazole	100%	
	3 Terbinafine	100%	
	4 Amphotericin B	100%	
	5 Thermotherapy	100%	
	9 Ignored	64%	
Collection of material for examination	1 Yes	100%	82%
	2 No	86%	
	9 Ignored	59%	
Date of material collection		100%	100%
Other tests performed	Date	95%	95%
	Exam Type	95%	
Presence of an animal in the household diagnosed with sporotrichosis	1 Yes	100%	88%
	2 No	91%	
	9 Ignored	73%	
Species of animal in the household diagnosed with sporotrichosis	1 Cat	100%	92%
	2 Dog	95%	
	3 Others	95%	
	9 Ignored	77%	
Contact with other animals	1 Cats	100%	88%
	2 Dogs	95%	
	3 Cats and dogs	95%	
	4 None	95%	
	5 Unknown	82%	
	9 Ignored	59%	
Criteria for confirmation of animal sporotrichosis	1 Laboratory	100%	91%
	2 Clinical	100%	
	3 Clinical Epidemiological	100%	
	9 Ignored	64%	
Time of injury to the animal	1 Month	91%	82%
	2 Year	91%	
	9 Ignored	64%	

Source: the author.

Chart 1. Continued...

Variables		% concordance	Simple mean
Treatment time for the animal	1 Month	86%	74%
	2 Year	82%	
	9 Ignored	55%	
Drug treatment received by the animal	1 Potassium iodide	86%	79%
	2 Itraconazole	86%	
	3 Terbinafine	82%	
	4 Fluconazole	82%	
	5 Ketoconazole	82%	
	6 Other	82%	
	9 Ignored	55%	
Environment where the animal lived	1 House	91%	83%
	2 Apartemnt	91%	
	3 Street	91%	
	9 Ignored	59%	
Access to the street	1 Free	95%	85%
	2 Restricted	95%	
	9 Ignored	64%	
Hospitalization			
Did hospitalization occur?	1 Yes	100%	86%
	2 No	95%	
	9 Ignored	64%	
Date of hospitalization		95%	95%
Hospital Municipality		95%	95%
Hospital Name		95%	95%
Conclusion			
Is the case autochthonous to the municipality of residence?	1 Yes	100%	89%
	2 No	95%	
	9 Ignored	73%	
Municipality		100%	100%
Confirmation/Dispatch Criteria	1 Laboratory	100%	99%
	2 Clinical Epidemiological	100%	
	3 Clinical	100%	
	9 Under investigation	95%	
Case Evolution	1 Cure	100%	91%
	2 Death by grievance	95%	
	3 Death from other causes	95%	
	4 Death under investigation	95%	
	9 Ignored	68%	

Source: the author.

Chart 1. Continued...

Variables	% concordance	Simple mean
Date of Death	95%	95%
Termination Date	100%	100%

Source: the author.

Chart 2. Variables of the instrument to evaluate the content of the compulsory notification form for sporotrichosis.

Variables		% Concordance	Simple mean
Dados Clínicos			
	1 Lower limb	100%	
	2 Upper limb	100%	
	3 Back	89%	
	4 Torso	100%	92%
	5 Disseminated	100%	
	6 Head/face	100%	
	9 Ignored	56%	
Inoculation point	1 Hand	89%	84%
	2 Foot	89%	
	3 Leg	89%	
	4 Forearm	89%	
	5 Arm	89%	
	6 Knee	78%	
	7 Thigh	78%	
	8 Face	89%	
	9 Anterior Thorax	89%	
	10 Posterior thorax	89%	
	11 Back	89%	
	12 Neck	89%	
	13 Shoulder	89%	
	14 Head/face	78%	
	99 Ignored	44%	
Presence of comorbidities	1 Human Immunodeficiency Syndrome	100%	91%
	2 Diabetes	100%	
	3 Alcoholism	89%	
	4 Immunosuppressive treatment	100%	
	5 Other	100%	
	9 Ignored	56%	
Treatment	1 Potassium iodide	100%	93%
	2 Itraconazole	100%	

Source: the author.

Chart 2. Continued...

Variables		% Concordance	Simple mean
	3 Terbinafine	100%	
	4 Amphotericin B	100%	
	5 Thermotherapy	89%	
	6 Surgical/creatotherapy	100%	
	7 Other	100%	
	9 Ignored	56%	
	1 Yes	100%	
Has contact with animal	2 No	100%	81%
	9 Ignored	44%	
	1 Month	78%	
Time of injury to the animal	2 Year	89%	70%
	9 Ignored	44%	
	1 Month	78%	
Treatment time for the animal	2 Year	78%	63%
	9 Ignored	33%	
	1 Potassium iodide	89%	
	2 Itraconazole	89%	
	3 Terbinafine	89%	
Drug treatment received by the animal	4 Fluconazole	67%	75%
	5 Ketoconazole	67%	
	6 Other	78%	
	9 Ignored	44%	
	1 Domesticated	89%	
Access to the street	2 Semi-domesticated	89%	78%
	3 Unrestricted street access	89%	
	9 Ignored	44%	
	1 Abandoned	78%	
	2 Buried	78%	
Fate of the animal	3 Discarded	78%	71%
	4 Cremated	89%	
	9 Ignored	33%	

Source: the author.

Chart 3. Compulsory Notification Form for Human Sporotrichosis.

General data	
Notification Date	__/__/____
Municipality of Notification	_____
Health Unit (notifying source)	_____
Date of First Symptoms	__/__/___

Source: the author.

Chart 3. Continued...

Individual Notification		
Patient Name		_____
Date of birth		__/__/___
Age		____
Sex		□
1 Male	2 Female	Ignored
Pregnant woman		□
1 1st trimester	2 2nd Trimester	3 3rd Trimester
4 Ignored gestational age	5 No	6 Not applicable
9 Ignored		
Race/Color		□
1 White	2 Black	3 Yellow
4 Brown	5 Indigenous	9 Ignored
Education		□
0 Illiterate	1 1st to 4th grade, incomplete ES (primary or elementary school)	2 4th grade, complete ES (primary or elementary school)
3 5th to 8th grade, incomplete MS (middle school)	4 Complete middle school (middle school)	5 Incomplete highschool
6 Complete highschool	7 Incomplete higher education	8 Complete higher education
9 Ignored	10 Not applicable	
UHS Card Number		_____
Mother's name		_____
Residential Data		
Municipality of Residence		_____
Neighborhood		_____
Street address (street, avenue, etc.)		_____
Number		_____
Complement (apartament, house etc.)		_____
Postal code		_____
Phone number		_____
Zon		□
1 Urban	2 Rural	3 Periurban
9 Ignored		
Country (if living outside of Brazil)		_____
Epidemiological Background		
Date of Investigation		__/__/____
Occupation		_____
Exercise activity that results in constant contact with plants (gardeners, farmers, farm workers, tillers, etc.)		□
1 Yes	2 No	9 Ignored

Source: the author.

Chart 3. Continued...

History of injury, trauma, handling of plants or organic material		□
1 Yes	2 No	9 Ignored
Probable way of contagion		□
1 Environmental	2 Animal	9 Ignored
Nature of the contact with animal		□
1 Bite	2 Scratch	3 Contact with Skin Injuries
9 Ignored		
Clinical data		
Clinical aspects of the injury		□
1 Widespread cutaneous	2 Lymphocutaneous	3 Fixed Cutaneous
4 Extracutaneous	9 Ignored	
Injury location		□
1 Lower limb	2 Upper limb	3 Back
4 Torso	5 Widespread	6 Head/face
9 Ignored		
Inoculation point		□
1 Hand	2 Foot	3 Leg
4 Forearm	5 Arm	6 Knee
7 Thigh	8 Face	9 Anterior thorax
10 Posterior thorax	11 Back	12 Neck
13 Shoulder	14 Head/face	99 Ignored
Presence of comorbidities		□
1 Human Immunodeficiency Syndrome	2 Diabetes	3 Drinking
4 Immunosuppressive Treatment	5 Others	9 Ignored
Treatment start date		__/__/____
Treatment time		□
1 Month		_____
2 Year		_____
9 Ignored		
Treatment		□
1 Potassium iodide	2 Itraconazole	3 Terbinafine
4 Amphotericin B	5 Thermotherapy	6 Surgical/Criotherapy
7 Others	9 Ignored	
Collection of material for examination		□
1 Yes	2 No	9 Ignored
Date of material collection		__/__/____
Other tests performed		

Source: the author.

Chart 3. Continued...

Date		__/__/____
Test Type		_____
Has contact with animal		□
1 Yes	2 No	9 Ignored
Species of animal in the household diagnosed with sporotrichosis		□
1 Cat	2 Dog	3 Others
9 Ignored		
Contact with other animals		□
1 Cats	2 Dogs	3 Cats and dogs
4 None	5 Unknown	9 Ignored
Criteria for confirmation of animal sporotrichosis		□
1 Laboratory	2 Clinical	3 Clinical Epidemiological
9 Ignored		
Time of injury to the animal		□
1 Month		_____
2 Year		_____
9 Ignored		
Treatment time for the animal		□
1 Month		_____
2 Year		_____
9 Ignored		
Drug treatment received by the animal		□
1 Potassium iodide	2 Itraconazole	3 Terbinafine
4 Fluconazole	5 Ketoconazole	6 Other
9 Ignored		
Environment where the animal lived		□
1 House	2 Apartament	3 Street
9 Ignored		
Access to the street		□
1 Domesticated	2 Semi-domesticated	3 Unrestricted street access
9 Ignored		
Fate of the animal		□
1 Abandoned	2 Buried	3 Thrown in the trash
4 Cremated	9 Ignored	
Hospitalization		
Did hospitalization occur?		□
1 Yes	2 No	9 Ignored
Date of hospitalization		__/__/____
Hospital Municipality		_____
Name of the Hospital		_____

Source: the author.

Chart 3. Continued...

Conclusion		
Is the case autochthonous to the municipality of residence?		□
1 Yes	2 No	9 Ignored
Municipality		_____
Confirmation/Dispatch Criteria		
1 Laboratory	2 Clinical Epidemiological	3 Clinical
9 Under investigation		
Case Evolution		□
1 Cure	2 Death by grievance	3 Death from other causes
4 Death under investigation	9 Ignored	
Date of death		__/__/____
Termination Date		__/__/____

Source: the author.

1. General data: contains information on the date of notification, municipality of notification, Health Unit (notifying source) and date of first symptoms;
2. Individual notification: comprises data on the patient's name, date of birth, age, sex, pregnant woman, race/color, education, among others;
3. Residence data: information about the municipality of residence, neighborhood, street address, number, among others;
4. Epidemiological background: comprises the date of the investigation, occupation, if he/she exercises an activity that results in constant contact with plants, history of injury, trauma, handling of plants or organic material, among others;
5. Clinical data: describes the clinical aspects of the lesion, lesion location, inoculation point, presence of comorbidities, date of treatment initiation, treatment time, among others;
6. Hospitalization: information if hospitalization occurred, date of hospitalization, municipality of the hospital, name of the hospital;
7. Conclusion: it is the closing of the notification form, informing if the case is autochthonous in the municipality of residence, which municipality, confirmation/discharge criteria, case evolution, date of death, and closing date.

DISCUSSION

This research promoted the development and evaluation of the content of the notification form for human sporotrichosis. The judges' analysis was fundamental for the evaluation of the data of the notification form adequate and comprehensive in its content through the Delphi technique, which has the objective of bringing objectivity to the results and for providing the sharing of responsibilities among the judges.[14]

In the process of evaluating the content of the notification form, the judges' contributions were included. The percentage of global agreement was satisfactory in the first and second rounds, and the judges made suggestions to ensure a more qualified construction of the notification form. It is important to highlight that the content evaluation is one of the most used methods for the evaluation of studies that need to undergo adjustments until the final version, being an important process in the development of a quality material.[17]

Thus, the process of constructing the form with attention to the suggestions of the judges is an essential step, with greater scientific rigor. The notification form follows a standard of the Ministry of Health, such as, for example, the variables in the categories general data, individual notification, and residence data.

In the evaluation of the form, it was suggested, in the variable "clinical aspects of the lesion", to change the item "cutaneous" to "cutaneous disseminated" and remove the items "mucous" and "subcutaneous". There are several clinical classifications and we used the description based on Freitas,[4] classifying the disease into lymphocutaneous, fixed cutaneous, disseminated cutaneous, and extra-cutaneous. Sporotrichosis presents itself under several clinical forms in humans, which are directly related to the route of infection and the immunological status of the patient, affecting both sexes and can occur at any age.[4]

In the variable "Lesion location", it was suggested to include the item "head/face" and remove the item "back". The description of the location of the lesion is important, because the therapy of choice depends on the clinical form, location of the disease and clinical status of the individual.[18] Studies have reported that the least covered areas of the body are the most affected by lesions in human sporotrichosis.[19]

In the variable "inoculation point", there was a suggestion to include the items "head/face", change the items "anterior thorax" and "posterior thorax" for "thorax", and remove the items "back"

and "shoulder". The main form of infection of humans occurs when there is traumatic inoculation of material contaminated by the fungus in wounds or cuts in the skin, as well as by direct contact with wounds from sick animals. And the initial lesion in the patient may remain localized at the point of traumatic inoculation and even involute spontaneously, with only the "immunological scar" remaining.[20]

It was suggested the inclusion of the variable "presence of comorbidities" with the items "Human Immunodeficiency Syndrome, diabetes, alcoholism, immunosuppressive treatment and others", because in patients with immunosuppressive conditions, dissemination and extra-cutaneous and sometimes fatal involvement can occur.[3,21] Study conducted by Bonifaz[22] described that decompensated diabetes and alcoholism are predisposing factors for the disseminated form, because there is an immunological deterioration related to the cellular response.[22] In HIV-infected or immunosuppressed patients, disseminated sporotrichosis is a rare but severe clinical form and occurs with very low CD4 T-cell counts and when there is visceral involvement of multiple organs.[23]

In the variable "drug treatment received", it was suggested to change the name of the variable to "treatment", because in some cases of cutaneous sporotrichosis, the lesions can be treated with the use of local thermotherapy, which prevents the growth of non-thermotolerant fungal species.[24] Another suggestion was to include the items "surgical/chiropractic" and "other", which is another treatment option and has better responses when used in patients with slower response to systemic antifungal drugs, reducing the treatment time, adverse effects and cost of conventional therapy.[25]

For the variable "presence of animal in the household diagnosed with sporotrichosis", it was suggested to change the wording to "has contact with animal", because many animals can be asymptomatic or have skin lesions without a diagnosis of sporotrichosis. Cats play an important epidemiological role in the transmission and spread of the disease and are an important factor in understanding the evolution of disease transmission and emergence in urban areas. Behavioral characteristics of these animals, such as digging and covering their droppings with earth, nail-sharpening on organic matter, biting and scratching during territorial disputes and by females for mating, and intimate contact to rub their faces on handlers, lead to scratching and biting, which allow traumatic inoculation of the fungus.[26]

It was suggested the exclusion of the variables "time of lesion of the animal", "time of treatment of the animal" and "drug treatment received by the animal", corresponding to detailed information from the animal part. These variables were kept because feline sporotrichosis is difficult and a long treatment period, and cats do not always respond well to the therapy used. Therefore, the cooperation and persistence of the person responsible for the animal are fundamental for the success of the treatment, and the animal should remain in isolation until it is cured.[27]

In the variable "street access", it was suggested that the items be replaced by "domiciled", "semi-domiciled" and "unrestricted access to the street", since the species' characteristic habit of digging and covering their droppings with earth is characterized as a notable source of infection.[26]

Another suggestion for inclusion was "animal's fate" with the items "abandoned", "buried", "thrown in the garbage", and "cremated". The inadequate destination of the animal contributes to a greater proliferation of the fungus in the environment. The fungus present in the environment inhabits the soil, vegetables, and wood, and can be transmitted through contaminated materials, such as splinters or thorns. The animals, in contact with this environment, become contaminated and transmit the disease through scratches, bites and direct contact with injured skin.[28]

The main source of epidemiological investigation for ES is through the compulsory notification form. Health services play an essential role in this context, because it is through the information on the notification form that measures can be taken to promote, protect and control the disease.[13]

The notification is mandatory for all health professionals, physicians, nurses, dentists, veterinarians, biologists, biomedical and others in the exercise of their profession, as well as those responsible for organizations and public or private health and education establishments, and is carried out upon suspicion or confirmation of a disease or grievance through the notification form.[29]

A specific notification form for the offense facilitates the communication of the disease to the health service and has essential fields to be filled out in order to obtain data that make it possible to identify the source of infection and the mechanisms of transmission of the disease.[30]

The main cause of underreporting is the lack of training of professionals to deal with suspected cases. The absence of official data and information hinders the planning of surveillance actions and the control of this disease, both in humans and animals. As an effective instrument of public policy, the notification is inserted as one of the primary strategies of the Ministry of Health, contributing to the implementation of public policies for surveillance.[30]

CONCLUSION AND IMPLICATIONS FOR PRACTICE

This study described the development and evaluation of a compulsory notification form for human sporotrichosis. The form was divided into seven categories, namely: general data; individual notification; residence data; epidemiological background; clinical data; hospitalization; and conclusion, containing 59 variables and 151 items.

It is believed that the notification form will be an instrument of communication to the ES, providing data for the technical orientation for health professionals, for the recommendation of control measures, promotion of actions, evaluation of the efficacy and effectiveness of the measures adopted, and dissemination of pertinent information.

With regard to the implications for the work of nursing in health surveillance, it is important to highlight that the notification form will contribute to the planning of health actions, the organization

and evaluation of nurses' work, aiming at greater control of sporotrichosis in the assisted population. Furthermore, it is important to mention that the notification form developed is a tool in the nurse's work process in order to contribute to the provision of care to users with sporotrichosis, since, once identified, it is possible to have greater control of their insertion in health services and, consequently, in the treatment and control of this disease.

Regarding the implications for future studies, we suggest the evaluation, in practice, of the notification form through implementation in health services and ESs.

Regarding the limitations of the study, we point out the small number of participants with clinical experience and theoretical knowledge on the subject.

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