ORIGINAL ARTICLE

REVISTA ENFERMAGEM ATUAL IN DERME

SURVEILLANCE OF HOME CONTACTS OF USERS WITH LEPROSY UNDER 15 YEARS OF AGE IN A HYPERENDEMIC MUNICIPALITY

VIGILÂNCIA DE CONTATOS DOMICILIARES DE USUÁRIOS COM HANSENÍASE MENORES DE QUINZE ANOS EM MUNICÍPIO HIPERENDÊMICO

Débora Aparecida da Silva Santos[1] * Salete Barbosa dos Santos[2] * Naira Rubia da Silva Ribeiro[3] * Letícia Silveira Goulart[4] * Magda de Mattos[5] * Lorena Araújo Ribeiro[6] * Ricardo Alves de Olinda[7]

ABSTRACT

Objective: to analyze health surveillance actions of home contacts of users with leprosy under the age of fifteen. **Methods:** a cross-sectional field study, guided by the Strengthening the Reporting of Observational Studies in Epidemiology tool. The study sample consisted of 122 home contacts of children under fifteen years old with leprosy in Rondonópolis (MT), from 2009 to 2018, selected according to the definition of home contact established by the Brazilian Ministry of Health. A structured questionnaire with sociodemographic variables and contact surveillance actions was applied. Data analysis was performed using the R Software, adherence chi-square tests and Fisher's exact test. **Results:** regarding the surveillance actions, the following prevailed: contact time over ten years (69.64%); one Bacillus Calmette-Guerin (BCG) vaccine scar (57.14%); and not having received the BCG vaccine (86.61%). As for the dermatological examination, most contacts underwent complete examination (66.07%); conversely, most did not undergo neurological examination (80.36%). There was a statistical difference for all variables of surveillance of home contacts. **Conclusion:** data from the contact surveillance conducted in the municipality showed that it is still carried out incompletely.

Keywords: Leprosy; Epidemiological Surveillance; Public Health; Minors.

RESUMO

Objetivo: analisar ações de vigilância de saúde dos contatos domiciliares de usuários com hanseníase menores de quinze anos. **Métodos:** estudo de campo, transversal, norteado pela ferramenta *Strengthening the Reporting of Observational Studies in Epidemiology*. A amostra do estudo foi composta por 122 contatos domiciliares dos menores de quinze anos com hanseníase em Rondonópolis (MT) 2009 a 2018 selecionados de acordo com a definição do ministério da saúde de contato domiciliar. Aplicou-se questionário estruturado com variáveis sociodemográficas e ações da vigilância de contatos. A análise dos dados foi realizada por meio do *Software* R e testes qui-quadrado de aderência e Exato de Fisher. **Resultados:** em relação às ações de vigilância prevaleceram: tempo de contato acima de dez anos (69,64%); uma cicatriz da vacina Bacilo de Calmette-Guerin (57,14%); não receberam a vacina (86,61%). Quanto ao exame dermatológico, a maioria foi realizado completo (66,07%); já o neurológico não foi realizado (80,36%). Houve diferença estatística para todas variáveis de vigilância dos contatos domiciliares. **Conclusão:** através dos dados da vigilância de contatos no município, observa-se que ainda é realizada de forma incompleta.

Palavras-chaves: Hanseníase; Vigilância Epidemiológica; Saúde Pública; Menores de Idade.

[1] Enfermeira, graduada em Enfermagem e Obstetrícia pela Fundação Educacional de Fernandópolis. Atualmente é professora Adjunto III do Curso de Enfermagem da Universidade Federal de Rondonópolis (UFR). Mestre em Ciências Ambientais e da Saúde pela Universidade PUC de Goiás. Doutora em Recursos Naturais pela Universidade Federal de Campina Grande (UFCG). Email: deboraassantos@hotmail.com. ORCID: https://orcid.org/0000-0003-1862-7883

[2] Enfermeira Graduada pela Universidade Federal de Rondonópolis. Participou de projetos de Iniciação Científica e de extensão como bolsista. E-mail: salete_venancia@hotmail.com. ORCID: https://orcid.org/0000-0002-6447-2790

[3] Enfermeira Graduada pela Universidade Federal de Rondonópolis. Participou de projetos de Iniciação Científica e de extensão como voluntária e do PET como bolsista. E-mail: nairarubia87@gmail.com. ORCID: https://orcid.org/0000-0001-9584-3702

[4] Farmacêutica, graduada em Farmácia Análises Clínicas pela Universidade Federal de Santa Maria, Mestrado em Ciência e Tecnologia Farmacêutica pela Universidade Federal de Santa Maria. Doutorado em Biologia celular e Molecular pela Universidade Federal do Rio Grande do Sul. Atualmente é professora associada na Universidade Federal de Rondonópolis. Email: lgoulart77@yahoo.com.br. ORCID: http://orcid.org/0000-00

[5] Enfermeira, graduada em Enfermagem e Obstetrícia pela Universidade Federal de Santa Maria/RS. Mestrado em Enfermagem pela Faculdade de Enfermagem da Universidade Federal de Mato Grosso. Doutorado em Educação pelo Instituto de Educação da Universidade Federal de Mato Grosso. Atualmente é professora Adjunto, Nível III do Curso de Enfermagem e do Programa de Residência Multiprofissional em Saúde da Família. E-mail: magda_roo@hotmail.com. ORCID: https://orcid.org/0000-0001-8330-1084

[6] Enfermeira, graduada e mestre em enfermagem pela Faculdade de Enfermagem da UFMT (FAEN/UFMT). Doutora em Saúde Coletiva pelo Programa de Pós-Graduação em Saúde Coletiva do Instituto de Saúde Coletiva da UFMT. E-mail: lorenaenfermeira@hotmail.com. ORCID: http://orcid.org/0000-0003-0525-4758

[7] Estatístico, Universidade Estadual da Paraíba, mestrado em Estatística e Experimentação Agropecuária pela Universidade Federal de Lavras. Doutor em Estatística e Experimentação Agronômica pela Universidade de São Paulo. Atualmente é professor adjunto do Departamento de Estatística, professor do quadro permanente do Mestrado em Saúde Pública da Universidade Estadual da Paraíba, professor do quadro permanente do Mestrado em Gestão e Tecnologia Ambiental da Universidade Federal de Mato Grosso-UFMT. E-mail: ricardo.estat@yahoo.com.br. ORCID: https://orcid.org/0000-0002-0509-8428

REVISTA ENFERMAGEM ATUAL IN DERME

INTRODUCTION

Leprosy is a curable chronic infectious disease of compulsory notification and investigation that affects superficial skin nerves and peripheral nerve trunks. When not treated early in time, it can evolve to physical disabilities[1]. Transmission occurs through prolonged contact with an untreated individual who suffers the disease, since the *Mycobacterium leprae* bacillus is eliminated through the airways[2].

Due to its incubation period, it is less common in individuals under 15 years of age; however, its incidence in this age group is greater in endemic areas[2]. The detection of pediatric cases indicates the existence of undiagnosed individuals and, consequently, active transmission of the pathology[3].

In Brazil, 311,384 new cases of leprosy were notified from 2009 to 2018, with a detection rate of 13.70 cases per 100,000 inhabitants in 2018. With regard to the period from 2009 to 2018, 21,808 cases were notified in individuals under fifteen years of age, with a detection rate of 3.75 cases per 100,000 inhabitants in 2018[4].

A study conducted in the state of Mato Grosso from 2011 to 2013 emphasizes that 411 cases of leprosy were notified in individuals under fifteen years of age, with a mean coefficient of 18.7/100,000 inhabitants[5]. In the municipality of Rondonópolis (MT), the detection rate was 30.02/100,000 inhabitants in 2010,[6] thus characterizing it as a hyperendemic municipality[7].

The Brazilian Ministry of Health (*Ministério da Saúde*, MS) defines as home contact any person who lives or has lived, who interacts or has interacted in the household in the last five years prior to disease diagnosis, regardless of being a relative or not; and social contact as those who somehow have lived or live in prolonged and close social relationships with an untreated contact with leprosy, including neighbors, co-workers, and classmates[2].

With the perspective of early detection and reduction in the number of leprosy cases, the MS recommends conducting an epidemiological investigation of all home contacts and highlights the following as guidelines: anamnesis focused on the signs and symptoms, performance of Dermato-Neurological Examination (DNE), recommendation for Bacillus Calmette-Guerin (BCG) vaccine[2], and guidelines on incubation time, form of transmission, and signs and symptoms of the disease[8].

Therefore, this study is justified by the fact that the municipality is considered hyperendemic for leprosy, by the scarcity of studies, and by the nonexistence of publications on the theme in the municipality; and its contribution will enable the planning of actions in the health services with regard to the surveillance of contacts.

In view of that, the guiding question of this study was the following: “Which actions

REVISTA ENFERMAGEM ATUAL IN DERME

for the surveillance of contacts were conducted in the municipality of Rondonópolis-MT"? This led to the study objective, which is to analyze the health surveillance actions of the home contacts of users under the age of fifteen diagnosed with leprosy in Rondonópolis (MT) from 2009 to 2018.

METHODS

This research is part of the matrix project entitled "Leprosy: analysis of the cases and of the program management in an hyperendemic municipality", submitted to the Research Ethics Committee (*Comitê de Ética em Pesquisa*, CEP) of the Federal University of Rondonópolis, by means of *Plataforma Brasil* and approved under opinion No. 3,036,673 and CAAE 97441618.2.0000.8088 on November 24th, 2018. In this way, it respects the precepts for research with human beings, according to Resolution No. 466/2012[9].

A cross-sectional filed study guided by the STROBE tool[10]. It was conducted in the municipality of Rondonópolis, Mato Grosso (MT), in relation to the 2009-2018 historical series. This municipality has an estimated population of 232,941 inhabitants. The territorial unit corresponds to 4,159.118 km^2 and the demographic density is 47,00 inhabitants/km^2[11]. Currently, this municipality has 42 Family Health Strategy (FHS) units, 4 Health Centers, 2 Polyclinics, and 1 Specialized Care Service (*Serviço de Atenção Especializada*, SAE), according to data from the National Registry of Health Institutions (*Cadastro Nacional de Estabelecimento de Saúde*, CNES)[12].

The type of sample used in the study was non-probabilistic sampling, consisting in 122 home contacts of the users under fifteen years old diagnosed with leprosy, in the 2009-20018 period. The inclusion criteria were based on the definition of home contact recommended by the Ministry of Health[2], considering the home contacts of all the leprosy cases diagnosed in individuals under 15 years old during the study period. The exclusion criterion was home contacts not found after three attempts.

Initially, secondary data were collected to identify users under fifteen years of age, through the record book of the Specialized Care Service (SAE) of the municipality.

The SAE is a reference outpatient secondary health unit whose aim is to offer specialized care to users diagnosed with Leprosy, Tuberculosis, Microcephaly, HIV/AIDS, and STIs. These care actions are provided through referrals from the Family Health Strategy (FHS) units and through spontaneous demand. The multiprofessional team that works in the Leprosy Program consists of a nurse, a physician, a nursing technician, a physical therapist, and an orthopedic artisan[13]. The record book

REVISTA ENFERMAGEM ATUAL IN DERME

contained the following variables: user's identification, date of birth, age, notification date, notifying FHS unit, address, clinical form, and operational classification.

Subsequently, data collection was conducted on the medical records of users under fifteen years of age to investigate the bacilloscopy and treatment initiation variables; in addition, the degree of physical disability, gateways, and disease detection variables were collected from the leprosy notification records.

After these stages, the participants, i.e., home contacts of these users who were diagnosed with leprosy, were approached through home visits for primary data collection, conducted from January to April 2019, with the administration of a structured questionnaire developed by the researchers. A pilot test was performed with the questionnaire, and the researchers were previously trained for the application of the questionnaire, which, although showing efficacy in this study, did not undergo any validation process.

The participants were interviewed after signing the Free and Informed Consent Form (FICF) or the Free and Informed Assent Form (FIAF) for contacts under the age of 18.

The questionnaire variables were the following: sociodemographic data (gender, age, race/skin color, marital status, schooling, family income, occupation, basic sanitation conditions, and comorbidity) and data referring to the surveillance actions of home contacts (time of contact with the user, operational classification of the index case, presence of BCG vaccine scar, guidelines on recommendation for the vaccine, performance of dermato-neurological examination, ease or difficulty in performing this examination, assessment by the health service, mobilization of contacts and return for assessment in the health service, and frequency in the FHS).

Data analysis was performed using simple and relative frequencies by means of the the *R Software* program, version 3.6.2. For descriptive analysis, the variables were selected according to the number of cases records per year in the municipality; and percentages for the categorical variables, with data organized into tables.

The associations between the categorical variables were assessed by means of the adherence chi-square test (χ^2) and Fisher's Exact test, with a 5% significance level and a 95% confidence interval (95%CI). All the analyses were carried out using the R statistical software[14].

RESULTS

In the ten-year period, 87 leprosy cases in individuals under 15 years old were notified in Rondonópolis-MT. Of this total, 48 cases were included in this study, corresponding to 112 home contacts. The year 2013 presented the largest number of home contacts (19.64%), whereas 2016 accounted for the lowest percentage (1.79 %).

REVISTA ENFERMAGEM ATUAL IN DERME

Table 1 compares the statistical relationship between number of leprosy cases and the number of home contacts.

Table 1- Distribution of the Leprosy Cases in individuals under 15 years old and of the Home Contacts, according to the 2009-2018 time series. Rondonópolis-MT, Brazil, 2019.

Year	Number of study participants: leprosy cases in individuals under 15 years old**		Number of home contacts	p-value*
	N	%	N (%)	
2009	4	8.3	9 (8.04)	<0.005
2010	7	14.6	11 (9.82)	
2011	6	12.5	14 (12.50)	
2012	6	12.5	18 (16.07)	
2013	9	18.8	22 (19.64)	
2014	3	6.2	5 (4.46)	
2015	6	12.5	12 (10.71)	
2016	1	2.1	2 (1.79)	
2017	2	4.2	6 (5.36)	
2018	4	8.3	13 (11.61)	
Total	48	100	112 (100)	

*Adherence chi-square test
Source: **Research Data, 2019.

With regard to the sociodemographic characteristics of the home contacts of leprosy cases in individuals under the age of 15, there was predominance of those aged from 21 to 59 years old (57.14%); brown-skinned (53.57%); with complete elementary schooling (68.75%); with a family income from 1 to 2 minimum wages (71.43%); and whose occupation was student/professor (41.96%). As for the basic sanitation conditions, all had access to drinking water and garbage collection (100%), and the predominant type of sewage was rudimentary cesspit (53.57%). The age, race, schooling, income and occupation variables present statistical significance in this study (p<0.005) (Table 2).

Table 2- Sociodemographic variables and sanitation conditions of home contacts of leprosy cases from 2009 to 2018. Rondonópolis-MT, Brazil, 2019.

Sociodemographic variables		N (%)	p-value*
Age	5-14	38 (33.93)	<0.005
	15-20	10 (8.93)	
	21-59	64 (57.14)	
Gender	Female	69 (61.61)	0.0140
	Male	43 (38.39)	
Race	White	26 (23.21)	<0.005
	Brown	60 (53.57)	
	Black	26 (23.21)	

REVISTA ENFERMAGEM ATUAL IN DERME

Marital Status	Single	65 (58.04)	0.0890
	Married	47 (41.96)	
Schooling	Illiterate to complete ES	77 (68.75)	<0.005
	Incomplete HS to complete HE	35 (31.25)	
Income	< 1 minimum wage	10 (8.93)	<0.005
	>1 up to 2 minimum wages	80 (71.43)	
	3 or more minimum wages	22 (19.64)	
Occupation	Freelancer	15 (13.39)	<0.005
	Student/Professor	47 (41.96)	
	Commercial sector	7 (6.25)	
	Housewife	21 (18.75)	
	Driver	5 (4.46)	
	General services	17 (15.18)	
Sanitation Conditions	Access to drinking water	112 (100)	0.9965
	Garbage collection	112 (100)	
Sewage	Conventional	52 (46.43)	0.4497
	Rudimentary cesspit	60 (53.57)	

Key: ES: Elementary School; HS: High School; HE: Higher Education
*Adherence chi-square test
Source: Primary data collected in the homes of the contacts of the leprosy cases in individuals under 15 years old from Rondonópolis (MT)

In relation to the surveillance actions of home contacts of leprosy cases under the age of 15 conducted in Rondonópolis (MT), the following prevailed: contact time over ten years (69.64%); multibacillary classification of the index case (73.21%); one BCG vaccine scar (n=64; 57.14%); not receiving guidelines on BCG vaccination (79.46%), not having been vaccinated (86.61%). As for the dermatological examination, most of the participants underwent a complete assessment (66.07%); whereas most (80.36%) did not undergo the neurological examination; in addition, FHS assessment and guidance on returning for assessment were not performed in most of the cases (n=95; 84.82% and n=104; 92.86%, respectively). A p-value below 0.005 indicates high statistical significance between the home contacts of users with leprosy under 15 years old and the variables under study (Table 3).

Table 3 - Surveillance actions for home contacts of the leprosy cases in individuals under 15 years old, in the 2009-2018 period. Rondonópolis-MT, Brazil, 2019.

Data of contact surveillance		N (%)	p-value*
Contact time	5 years	5 (4.46)	<0.005
	6-10 years	29 (25.9)	
	More than 10 years	78 (69.64)	
Classification of the users	Multibacillary	82 (73.21)	<0.005
	Paucibacillary	30 (26.79)	
Number of BCG scars	None	33 (29.46)	<0.005
	One	64 (57.14)	

REVISTA ENFERMAGEM ATUAL IN DERME

	Two	15 (13.39)	
Guidance on BCG	Yes	17 (15.18)	<0.005
	No	89 (79.46)	
	Does not remember	6 (5.36)	
Received BCG	Yes	15 (13.39)	<0.005
	No	97 (86.61)	
Dermatological Exam Performed	Yes, complete	74 (66.07)	<0.005
	Yes, incomplete	2 (1.79)	
	No	36 (32.14)	
Neurological Exam Performed	Yes	14 (12.50)	<0.005
	Yes, does not know if complete or incomplete	8 (7.14)	
	No	90 (80.36)	
Reason that facilitated DNE	Received guidance	19 (16.96)	<0.005
	Personal willingness to undergo examination	7 (6.25)	
Reason that hampered DNE	Did not receive guidance	80 (71.43)	<0.005
	The family did not get involved	4 (3.57)	
	Did not want to undergo examination	1 (0.89)	
	Work	1 (0.89)	
	Others	1 (0.89)	
Examined by the FHS	Yes, without changes	17 (15.18)	<0.005
	No	95 (84.42)	
Return for assessment	Yes, in case of signs and symptoms	8 (7.14)	<0.005
	No	104 (92.86)	
Frequency in the FHS	Yes/Last 6 months	62 (55.36)	<0.005
	Yes/Last 12 months	16 (14.29)	
	No	34 (30.36)	

Key: DNE: Dermato-Neurological Examination; FHS: Family Health Strategy
Source: Primary data collected in the homes of the contacts of the leprosy cases in individuals under 15 years old from Rondonópolis (MT).

DISCUSSION

During the study period in Rondonópolis (MT), 48 cases included in the research corresponded to 112 home contacts, with a mean of 2.54 contacts for each leprosy case. These are data similar to those of the municipality of Buriticupu (MA) in 2007, with index cases having from three to five contacts (38.4%)[15].

It is noted that, in the findings of the municipality of Rondonópolis (MT), the age and race variables were statistically significant, whereas the same situation cannot be observed in relation to gender.

With regard to the home contacts' schooling, this study showed predominance of low schooling, corroborating 46.7% of the cases in the state of Pará (from 2012 to 2015), stressing that low schooling level is a risk factor for leprosy for the home contacts that can related to non-attendance for assessment

REVISTA ENFERMAGEM ATUAL IN DERME

and limited understanding on disease control[16].

The findings of this study also show that most of the contacts had a low income and, although having good household sanitation conditions, a large percentage uses rudimentary cesspit, which shows a high rate of social vulnerability. Araújo and Lana[17] highlight that poverty and social inequality are contributing factors for the maintenance of the leprosy transmission chain.

In this study, the contact time among the users with leprosy under the age of 15 and their home contacts were over 10 years (69.64%). Considering the incubation period of leprosy, these contacts have more chances of acquiring the disease due to prolonged contact with the index case[2].

With regard to the operational classification, in this study there was predominance of contacts of multibacillary cases. Considering that this classification represents the infectious form of the disease and that the household is a significant source of transmission, home contacts of these users are at a significant risk for acquiring the disease[2].

As for BCG vaccine scars, most of the individuals in this study have one scar (57.14%). It is worth noting that the Ministry of Health recommends applying the BCG vaccine to all home contacts of leprosy cases with no signs and symptoms and, thus, individuals with only one scar should receive a dose of the vaccine[7]; however, this study found that most of the contacts did not receive this dose (86.61%) or guidelines about it (79.46%), therefore leading to incomplete epidemiological surveillance of these contacts.

Through this study, it can be identified that most of the home contacts underwent the dermatological examination (66.07%) but not the neurological examination (80.36%). The MS highlights that the diagnosis of leprosy is mainly clinical and epidemiological and that the aim of contact surveillance is to search for new cases through the dermato-neurological examination; however, the incomplete performance of this examination contributes to the permanence of the disease transmission chain[2].

The reasons that facilitated and hampered the performance of the dermato-neurological examination were guidance (16.93%) and its absence (71.43%), respectively. The actions conducted by the health units, such as analysis of the disease epidemiological indicators and education in health with the purpose of granting autonomy to the users with leprosy and their contacts, can collaborate to a resolute professional practice[18].

Most of the participants of this research were not examined in the FHS (84.82%). In this sense, in virtue that the diagnosis of new leprosy cases in individuals under 15 years of age is a possible indicator that there are still undiagnosed cases and

REVISTA ENFERMAGEM ATUAL IN DERME

cases not treated by the health units, it becomes necessary to conduct an active search through the home contact assessment in order to reduce the disease transmission chain[19]. Since Primary Health Care (PHC) aims at developing comprehensive care that has a positive impact on the health status of the community, and that contact assessment is an extremely important strategy to reduce the endemicity rates of the disease[20], this finding reflects ineffective care in this municipality.

CONCLUSION

Through the data on contact surveillance in the municipality under study it is observed that that it is still carried out incompletely, which reinforces the need of continuous training for health care professionals, especially those working in primary health care, considering that PHC is the gateway to the health care network and should be able to perform the activities that contribute to reducing the burden of leprosy in the country. Finally, this study will positively contribute to the practice of the health care professionals working in the institutions responsible for leprosy surveillance, by guiding them in decision-making on strategies to reduce and control the leprosy transmission chain in the municipality.

REFERENCES

1. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. Guia prático sobre a hanseníase [Internet]. Brasília: Ministério da Saúde 2017 [Acesso em 15 de Jan 2020] Disponível em: http://bvsms.saude.gov.br/bvs/publicacoes/guia_vigilancia_saude_volume_2.pdf

2. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. Guia prático sobre a hanseníase [Internet]. Brasília: Ministério da Saúde 2019 [Acesso em 21 de Jan 2020] Disponível em: https://portalarquivos2.saude.gov.br/images/pdf/2019/junho/25/guia-vigilancia-saude-volume-unico-3ed.pdf

3. Oms. Organização Mundial da Saúde. Estratégia Mundial de eliminação da lepra 2016:2020: Acelerar a ação para um mundo sem lepra. OMS 2016[Internet]. [Acesso em 21 Set 2019] Disponível em: http://nhe.fmrp.usp.br/wp-content/uploads/2017/06/Hanseniase_2016-2020.pdf

4. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Boletim Epidemiológico da Hanseníase [Internet]. 2020 [Acesso em 04 Mai 2020]; número especial:1-51.Disponível em: https://www.saude.gov.br/images/pdf/2020/janeiro/31/Boletim-hanseniase-2020-web.pdf

5. Freitas BHBM, Xavier DR, Cortela DCB, Ferreira SMB. Hanseníase em menores de quinze anos em municípios prioritários, Mato Grosso, Brasil. Rev. bras. epidemiol [Internet]. 2018 [Acesso em 2019 Nov 9];21(e180016):1-12. DOI10.1590/1980-549720180016. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415790X2018000100414&lng=en&nrm=iso

6. Santos DAS, Santos SB, Ribeiro NRS, Goulart LS, Olinda RA. Tendência dos casos de hanseníase em menores de quinze anos em Rondonópolis-MT. Revista O mundo Saúde [Internet]. 2018

[Acesso em 20 de Nov 2019];42(3):609-627. Disponível em: https://pesquisa.bvsalud.org/portal/resource/pt/mis-40159.

7. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Diretrizes para vigilância, atenção e eliminação da hanseníase como problema de saúde pública: manual técnico operacional[Internet]. 2016 [Acesso em 20 de Nov 2019]. Disponível em: https://www.saude.gov.br/images/pdf/2016/fevereiro/04/diretrizes-eliminacao-hanseniase-4fev16-web.pdf

8. Brasil. Ministério da Saúde. Gabinete do Ministro. Portaria n° 3125, de 7 de outubro de 2010. Aprova as diretrizes para vigilância, atenção e controle da hanseníase. Diário Oficial da República Federativa do Brasil, Poder Executivo[Internet]. Brasília, DF. 15 Out. 2010 [Acesso em 15 de Nov 2019]; Seção 1, p.55. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2010/prt3125_07_10_2010.html

9. Brasil. Ministério da Saúde. Resolução n° 466, de 12 de dezembro de 2012. [Internet]. Brasília, DF. 12 Dez. 2012 [Acesso em 15 de Jan 2020]. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

10. Equator. Enhancing the QUAlity and Transparency Of health Research[Internet]. 2020 [cited 2020 mai 06]; Disponível em: https://www.equator-network.org/reporting-guidelines/strobe/

11. Ibge. Instituto Brasileiro de Geografia e Estatística [Internet]. 2020 [Acesso em 12 de Fev 2020]; Disponível em: https://cidades.ibge.gov.br/

12. Cnes. Cadastro Nacional do Estabelecimento de Saúde [Internet]. 2020 [Acesso em 10 de Fev 2020]; Disponível em: http://cnes.datasus.gov.br/pages/estabelecimentos/consulta.jsp

13. Sae. Serviço de Atenção Especializada. Manual: regimento interno, normas e rotinas e protocolos operacionais padrão. Rondonópolis, 2017; 97p.

14. R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.Rproject.org/.

15. Leite KKC, Costa JML, Barral A, Caldas AJM, Corrêa RGCF, Aquino DMC. Perfil epidemiológico dos contatos de casos de hanseníase em área hiperendêmica na Amazônia do Maranhão. Caderno de Saúde Coletiva, Rio de Janeiro [Internet]. 2009[Acesso em 05 de mai 2020];17,1:235-249. Disponível em: http://www.cadernos.iesc.ufrj.br/cadernos/images/csc/2009_1/artigos/Art_16CSC09_1.pdf

16. Cunha MHCM, Silvestre MPSA, Silva AR, Rosário DDS, Xavier MB. Fatores de risco em contatos intradomiciliares de pacientes com hanseníase utilizando variáveis clínicas, sociodemográficas e laboratoriais. Revista Pan-Am-Saúde[Internet]. 2017[Acesso em 05 de mai 2020];8,2:23-30. DOI: 10.5123/S2176-62232017000200003 Disponível em: http://scielo.iec.gov.br/scielo.php?script=sci_arttext&pid=S2176-62232017000200021

17. Araújo KMFA, Lana FCF. Relação da hanseníase com a cobertura da estratégia saúde da família e condições socioeconômicas. Ciencia Y Enfermeria 2020[Internet]. [Acesso em 05 de mai 2020];26,1:9. Disponível em: https://scielo.conicyt.cl/pdf/cienf/v26/0717-9553-cienf-26-1.pdf

18. Lozano AW, Neto JMP, Femina LL, Donda P, Silva CFG, Nardi ST, Paschoal VDA. O domicílio como importante fator

de transmissão da hanseníase. Rev Enferm UFPE [Internet]. 2019[Acesso em 29 de abr 2020];13 e:241790:1-10. DOI: 10.5205/1981-8963.2019.241790. Disponível em: https://www.leprosy-information.org/resource/o-domicilio-como-importante-fator-de-transmissao-da-hanseniase

19. Freitas BHBM, Cortela DCB, Ferreira SMB. Tendência da hanseníase em menores de 15 anos em Mato Grosso (Brasil), 2001-2013. Revista de Saúde Pública [Internet]. 2017[Acesso em 29 de abr 2020];51,28: 1-10. DOI: doi.org/10.1590/S1518-8787.2017051003884. Disponível em: https://www.scielo.br/pdf/rsp/v51/pt_0034-8910-rsp-S1518-87872017051006884.pdf

20. Brasil. Ministério da Saúde. Portaria nº 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). [Internet]. Brasília, DF. 21 Set. 2017b [Acesso em 23 de abr 2020]; Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2017/prt2436_22_09_2017.html.

Submission: 2020-08-08
Approval: 2021-02-07