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ORIGINAL ARTICLE

THE HOME AS AN IMPORTANT LEPROSY TRANSMISSION FACTOR*

O DOMICÍLIO COMO IMPORTANTE FATOR DE TRANSMISSÃO DA HANSENÍASE

EL DOMICILIO COMO UN IMPORTANTE FACTOR DE TRANSMISIÓN DE LA LEPRA

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ABSTRACT

Objective: to describe the profile of households and household contacts who presented one or more cases of the disease after the first notification. ***Method:*** this is a quantitative, descriptive, cross-sectional, retrospective study. Fifty-two patients who presented the disease after notification of the index case in SINAN were studied. Data was collected from medical records and interviews were conducted using a form. Data were analyzed using the statistical program EPI INFO 7.1.1.0, and descriptive statistical analysis was performed. ***Results:*** in 2013 and 2014, 101 cases of leprosy were reported. The average number of contacts was 3.6 per household, and 46 had been living with the index case for over ten years; Regarding the contacts of these households, the education level is low; 65.4% of them did not receive the BCG vaccine; 61.5% were not clinically evaluated and 21.2% of contacts still suffered some kind of discrimination/prejudice. ***Conclusion:*** it is believed that contact control is one of the strategic pillars for breaking the disease transmission chain at home, associated with early diagnosis, treatment and prevention of physical disabilities. ***Descriptors***: Home Patients; Epidemiology, Public Health and Neglected Diseases; Leprosy; Contact Tracing.

RESUMO

Objetivo*:** descrever o perfil dos domicílios e dos contatos intradomiciliares que apresentaram um ou mais casos da doença após a primeira notificação. ***Método*:** trata-se de um estudo quantitativo, descritivo, transversal, retrospectivo. Estudaram-se 52 pacientes que apresentaram a doença após a notificação do caso índice no SINAN. Coletaram-se os dados em prontuário e realizaram-se entrevistas por meio de formulário. Analisaram-se os dados no programa estatístico EPI INFO 7.1.1.0, realizando-se a análise estatística descritiva. ***Resultados*:** notificaram-se, nos anos de 2013 e 2014, 101 casos de hanseníase. Revela-se que a média de contatos foi de 3,6 por domicílio, sendo que 46 conviviam há mais de dez anos com o caso índice; em relação aos contatos desses domicílios, a escolaridade é baixa; 65,4% deles não receberam a vacina BCG; 61,5% não foram avaliados clinicamente e 21,2% dos contatos ainda sofreram algum tipo de discriminação/preconceito. ***Conclusão: acredita-se que o controle dos contatos é um dos pilares estratégicos para a quebra da cadeia de transmissão da doença no domicílio, associado ao diagnóstico precoce, tratamento e prevenção de incapacidades físicas. ***Descritores*:** Habitação; Epidemiologia; Saúde Pública; Doenças Negligenciadas; Hanseníase; Busca de Comunicante.

RESUMEN

Objetivo: describir el perfil de los hogares y contactos familiares que presentaron uno o más casos de la enfermedad después de la primera notificación. ***Método:*** este es un estudio cuantitativo, descriptivo, transversal, retrospectivo. Se estudiaron 52 pacientes que presentaron la enfermedad después de la notificación del caso índice en SINAN. Los datos se recopilaron de los registros médicos y las entrevistas se realizaron mediante un formulario. Los datos se analizaron utilizando el programa estadístico EPI INFO 7.1.1.0 y se realizó un análisis estadístico descriptivo. ***Resultados:*** en 2013 y 2014, se informaron 101 casos de lepra. El número promedio de contactos fue de 3.6 por hogar, y 46 habían estado viviendo con el caso índice por más de diez años; con respecto a los contactos de estos hogares, el nivel educativo es bajo; el 65,4% de ellos no recibieron la vacuna BCG; el 61.5% no fueron evaluados clínicamente y el 21.2% de los contactos aún sufrieron algún tipo de discriminación/prejuicio. ***Conclusión:*** se cree que el control de contacto es uno de los pilares estratégicos para romper la cadena de transmisión de enfermedades en el hogar, asociado con el diagnóstico temprano, el tratamiento y la prevención de discapacidades físicas. ***Descriptores***: Vivienda; Epidemiología; Salud Pública; Enfermedades Desatendidas; Lepra; Trazado de Contacto.

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INTRODUCTION

Leprosy is still known to be a public health problem not only in Brazil, but in India and several other countries in Asia and Africa. It is reported that Brazil is the second most endemic country in the world, despite the progress made with the implementation of the Unified Health System (UHS) in 1988 and multidrug therapy in 1991. It is added that the distribution of leprosy is between the five macroregions, the 26 states, the Federal District and the 5570 municipalities.[1]

Due to leprosy, serious biopsychosocial and economic damages are caused. Analysis and evaluation of the Leprosy Elimination Program should be developed at all levels of the health system to support the implementation of the activities.[1]

In 2016, the "Global Leprosy Strategy 2016/2020: Accelerating towards a World without Leprosy" was launched by WHO, which emphasizes the early detection of cases before the onset of visible disabilities, especially in children, such as children, as a way to reduce disabilities and reduce transmission.[2]

Other goals are to increase detection in higher-risk groups through campaigns in high-endemic areas or communities, with reduction of patients with grade 2 disability, and to develop national plans to ensure examination of all close contacts (the goal is the examination of all household contacts).[2]

The domicile is pointed as an important environment of leprosy transmission. In this scenario, epidemiological investigation becomes fundamental for the discovery of new cases, and is considered a strategy to reduce the burden of this disease.[1,3]

Contact surveillance consists of investigating all intra-household contacts of new cases detected and should be performed: anamnesis directed to the signs and symptoms of leprosy; neurodermatological examination of all household contacts of new cases detected; checking for BCG-id scar. Every leprosy contact should be advised that BCG is not a specific vaccine for her, but provides protection from 26 to 61%, according to the literature.[1,4]

It is pointed out that, in recent years, there is a recommendation on the follow-up of extradomiciliary contacts of leprosy, which is seen by several authors as an enhancement in the control of the disease, especially those who defend the stone in the pond model, in order to extend control beyond the family circle, involving neighbors, people from the work circle, church, among other collective spaces.[1,4-6]

In 2017, the Ministry of Health published a new classification and concepts of contact - home and social, with home contact "any person residing or residing with the leprosy patient" and social contact as " any person who lives or has lived in family relationships or not, in a close and prolonged way".[4:8]

It is also stated in this document that recent or old family contacts, of any clinical form, should be examined independently of the length of contact, and it is suggested to evaluate them annually for five years, whether they are family contacts and, after this period, should be released and advised about the possibility in the future of the appearance of signs and symptoms suggestive of leprosy.[4]

It is explained in the Health Surveillance Guide that social contacts include, but are not limited to, neighbors, co-workers, schoolmates who spend more than twenty hours a week with the index case. Persons living next door, in front or in the back of the index case residence are considered to be neighborhood contacts.[1]

It is also pointed out in studies carried out in various scenarios and methodologies, a higher risk of getting sick from these household contacts of leprosy.[6-8]

It is warned that the risk of the disease is higher in the first year after the diagnosis of the index patient and that, if the patient is treated, the likelihood of disease between home contacts tends to fall, although secondary cases may arise due to the long incubation period of the agent or over long exposure to the bacillus.[9]

Afirma-se, ainda, que "é importante ter em mente que um indivíduo pode estar infectado, mas não mostrar sinais da doença".[9]

It is noted that the participation of contacts in leprosy endemic is not consensual in the literature, given the diversity of results. The risk of leprosy transmission is reported to be about five to ten times higher if a family member has already manifested the disease and an untreated or adequately treated multibacillary patient produces about five new cases per year.[10] Other authors argue that intra-household contacts confer a high risk and vulnerability when compared to the general population, and therefore have significant epidemiological importance.[11-2]

Tests such as ML Flow and anti LDI 1 (Leprosy Infectious Disease Research Institute Diagnostic-1), NDO-LID (Natural Octyl Disaccharide - Leprosy Infectious Disease Research Institute Diagnostic-1) and NDO-HSA (Natural Disaccharide Linked to Human Serum Albumin by Octyl), which can be performed on contacts, as various studies show.[8,13-5]

This study aims to demonstrate the importance of the household as a factor of transmission of leprosy, to identify the profile of households and household contacts in households with one or

more cases of leprosy after notification of the first case of the disease.

OBJECTIVE

- To describe the profile of households and household contacts who presented one or more cases of the disease after the first notification.

METHOD

This is a quantitative, descriptive, cross-sectional and retrospective study. This research was conducted in Fernandópolis/SP, located in the extreme northwest of the state of São Paulo, 555 km from the state capital, with 68,120 inhabitants. Fernandópolis, in the health area, stands out as an important reference center not only for the twelve municipalities of its microregion, but for those of other surrounding microregions. It has Primary Care 17 Basic Health Units, with 23 Family Health Strategy teams, providing coverage of 100% of families. Leprosy care is centralized in this municipality at the Infectious and Parasitic Disease Care Center (PDCC).

The inclusion criteria included inter-household communicants of leprosy who reported having presented the disease after the notification of a case at home, during interviews, from cases reported in 2013 and 2014 in PDCC. Patients under 18 years of age and/or who were not contacted after three telephone contact attempts plus three visit attempts at different days and times were excluded. Data was collected from medical records after approval by the Ethics Committee of the School of Medicine of São José do Rio Preto, Opinion No. 41392815.9.0000.5415, and consent of all subjects through the Free Informed Consent Term (FICT), followed by interviews containing clinical, epidemiological and sociodemographic data about the disease studied.

An index case was considered, in this study, the first person notified at the residence.

Data was analyzed using the statistical program EPI INFO 7.1.1.0, and descriptive statistical analysis was performed, with frequency distribution for the description of clinical and sociodemographic variables.

RESULTS

In 2013 and 2014, SINAN reported 101 cases of leprosy in the municipality; of these, two medical records were not made available by the health unit, totaling a population of 99 patients. In the search for transmission of the home disease, it was found that in 22 households, there was more than one case of leprosy after the index case was notified, and in 16 of them, one more person was diagnosed, and in six others, There were two cases, totaling 28 household contacts who fell ill and, with them, lived 52 communicants, which are the subjects of this research.

Table 1. Distribution of intra-household contacts of leprosy according to the degree of relationship, type of housing, number of rooms, level of education and family income. Fernandópolis (SP), Brazil, 2013-2014.

Home Contact Profile		n	%
Degree of kinship	Spouse	13	25.0
	Childe	8	15.4
	Mother/Father	11	21.1
	Sibling	7	13.5
	Inlaws	5	9.6
	Grandchild	4	7.7
	Others	4	7.7
	Total	52	100
Type of home	Own home	28	53.8
	Leased home	8	15.4
	Given home	4	7.7
	Morgaged home	12	23.1
	Total	52	100
Number of rooms	Teo	1	1.9
	Four	4	7.7
	Five	9	17.3
	Six	9	17.3
	Seven	21	40.4
	Eight/Nine	8	15.4
	Total	52	100
Education	Illiterate	05	9.6
	1st to 4th graded of ES*	05	9.6
	Complete 4th grade of ES*	03	5.8
	5th to 8th grades of ES*	08	15.4
	Complete ES*	04	7.7
	Incomplete HS†	06	11.5
	Complete HS†	14	27.0
	Incomplete HE‡	06	11.5
	Complete HE‡	01	1.9

	Total	52	100
Family income (Minimum wage)	Up to one	4	7.7
	One to two	28	53.8
	Four to five	20	38.5
	Total	52	100.0

*Elementary School. † Highschool. ‡ Higher Education

Regarding housing, it was found that 28 (53.8%) communicants lived in “own homr”; eight (15.4%) in “leased home”; four (7.7%) in “given home” and 12 (23.1%) in “morgaged home”; Regarding the housing structure, 51 (98.1%) of the communicators lived in brick houses; With regard to the number of rooms, 21 (40.4%) lived in houses with seven rooms; nine (17.3%), with five and nine (17.3%), with six, eight (15.4%) with eight or nine. Four other (7.7%) communicators lived in properties with four rooms and one (1.9%), with two rooms; Regarding the number of bedrooms per household, it was informed by contacts that 24 (46.2%) of them had up to two bedrooms; 22 (42.3%), three and six (11.5%) said they had four or five bedrooms; Regarding the number of bathrooms per household, 23 (44.2%) contacts confirmed that the property had only one; 25 (48.1%) reported having two bathrooms; three (5.8) had three, but one (1.9%) interviewed stated that they had none.

It was reported by the 52 (100%) contacts that the houses had a connection with the electricity grid; 52 (100%) reported that the household had water supply; 52 (100%) reported that the household was connected to the sewage collection system and that it was served by the city's garbage collection system; 48 (92.3%) contacts reported that the street had asphalt pavement and 37 (71.1%) reported that they had internet access.

It is emphasized that the average number of contacts in this research was 3.6 per household, and 46 had been living with the index case patient for over ten years; two, from five to nine years old; two, three to five and two, one to three years.

Table 2. Distribution of leprosy intra-household contacts in relation to health service follow-up. Fernandópolis (SP), Brazil, 2013-2014.

Health service monitoring		N	%
Vaccination according to the Leprosy Control Program?	Yes	18	34.6
	No	34	65.4
	Total	52	100.0
Health professionals explained about the importance of contact assessment?	Yes	19	36.5
	No	33	63.5
	Total	52	100.0
Was clinically evaluated by the health service?	Yes	20	38.5
	No	32	61.5
	Total	52	100.0
In what situation was assessed by the health service?	In a visit to the service	20	100.0
	In a visit at home	0	0
	Total	20	100.0
How long after the start of treatment were you evaluated?	< or = to 15 days	2	10.0
	16 to 45 days	10	50.0
	46 or + days	8	40.0
	Total	20	100.0
Which professional evaluated you?	Nurse	5	25.0
	Doctor	7	35.0
	Physiotherapist	2	10.0
	Other combinations	6	30.0
	Total	20	100.0

It was observed, when the household contacts were asked about their knowledge of leprosy, that most had heard of the disease; regarding the prejudice variable, 21.2% reported having suffered it because they were contacts.

Table 3. Distribution of household contacts of leprosy in relation to knowledge about the disease. Fernandópolis (SP), Brazil, 2013-2014.

Knowledge about leprosy	N	%	
I had heard about leprosy before it manifested at home?	Yes	37	71.2
	No	15	28.8
	Total	52	100.0
Had any fear/hesitation of living with a leprosy patient?	Yes	8	15.4
	No	44	84.6
	Total	52	100.0
Have you suffered any kind of discrimination/prejudice as contacts?	Yes	11	21.2
	No	41	78.8
	Total	52	100.0

DISCUSSION

The home is shown as an important environment for leprosy transmission. In this scenario, the epidemiological investigation becomes fundamental for the discovery of new cases, being considered a strategy to reduce the disease burden,[1,3,8] and in this study 28 cases were diagnosed after reporting a case at home.

Regarding the degree of kinship of the 52 contacts with the first case diagnosed at home, there was a predominance of spouses (25%), followed by mother/father (21.1%) and sons/daughters (15.4%). In a study conducted in Maranhão, the first-degree consanguineous kinship was 54.92%, followed by second-degree consanguineous kin.[16] In another study carried out in a municipality in the Mata Mineira zone, it was found that 33.3% of the communicants did not have any inbreeding with the case.[17]

In relation to the low educational level of the contacts, researchers found similar or worse data. In a study conducted in the interior of Pará, it is mentioned that most of the communicators had completed elementary school (42.1%), followed by incomplete elementary school (18.04%) and illiterate, with 15.03%, and Higher Education completed with only one (0.75%) out of a study population of 133 contacts[18]. It was demonstrated in another study from Para[8], 46.7% of the communicators had elementary school and 43.3% had high school. It was found, in a study on leprosy patients and their family network, which covered states of the North and Northeast of Brazil, that elementary school (272; 50.6%) predominated among the research subjects[19] and in a study conducted in Paraíba, from 2008 to 2012, with leprosy patients, 9.35% were illiterate and 49.13% had incomplete elementary school[20]. In another study from Paraíba, from 2001 to 2011, it was revealed that leprosy cases diagnosed by means of contact examination showed that 4.42% were illiterate and 67.31% had elementary school[21].

It is known that education is a barrier to access to UHS, so contacts with this profile may have difficulty accepting the invitation to the patient to attend the health unit, as well as being less able to understand the guidelines of health professionals about the need for clinical evaluation and to receive the BCG-id vaccine if needed.

With regard to family income, minimum wages were found that four (7.7%) received up to one and 28 (53.8%) received one to three salaries. It was also found in a previous study that 60.15% of communicants earned less than one minimum wage[19]. Due to the low social condition, it leads to inequalities in food, housing, education, and work conditions, among others, which directly reflect the population's quality of life and health standards. In an epidemiological study, the socioeconomic inequalities of the different regions of the country were pointed as impeding the elimination of leprosy in Brazil, as the poorest regions are the most endemic[22].

It is noticed that the percentage of household contacts not evaluated in this study is precarious (61.5%), because other studies found 42% 17 and 63.16%[18] contacts without dermatoneurological evaluation by the health services, and in this last study, the researchers also found that the rate of non-evaluated contacts of paucibacillary and multibacillary cases was 33.3% (28/84) and 66.7% (56/84) respectively[18].

It is noteworthy that these data are far below those shown in two other studies: one conducted in Cacoal/RO, where 99.3% of contacts were examined in 201323, and another from the Ministry of Health, which shows the percentage of examinations of leprosy contact in all Brazilian states and regions, from 2012 to 2016, whose lowest percentage was in Rio Grande do Norte (59.6%) and the highest in Paraná (94.2%); The region with the lowest percentage of contact evaluation was the Northeast (71.8%) and the largest was the South (91.1%); at country level, 77.0% of contacts evaluated[24]. This result is considered good by the Ministry of Health (greater than or equal to 75%)[4].

It was shown by this study, also observing these factors of maintenance of the endemic, as the time elapsed of the neurodermatological evaluation after the diagnosis of the index case, that there was a predominance of 16 to 45 days, reported by ten (50.0%). people, and the physician

was the health professional who most evaluated these contacts (35%), followed by the nurse (25%) and the physical therapist (10%). Warned, by authors, in another study[23], that the nurse was the one who most performed the contact examination and that the realization, even by unqualified professionals, according to Ministry of Health regulations, may compromise this control.

When asked to the 52 interviewed interviewees, "health professionals explained about the importance of clinical evaluation of the communicants", who 33 (63.5%) said no and this reinforces the presupposition of surveillance failures of contacts by health unit professionals.

Among the problems related to contact control, the lack of guidance on the disease and its forms of transmission can be cited, as well as that many household contacts do not attend the health service to perform the evaluation even if attendance is requested.

In another study, the difficulties of contact examination were pointed out: lack of guidance from health professionals; incompatibility of time with the service; however he did not want to do it; no family involvement and transportation difficulty[23].

It is noteworthy that there are several strategies to ensure contact surveillance, be it in regions/municipalities from low to high endemicity, including home visiting, as it is one of the strategies established by the Ministry of Health[1,4] most mentioned by nurses who participated in a survey on nurses' knowledge and practice about leprosy[25].

The BCG vaccine is recommended by the Ministry of Health that it should be applied to family contacts without the presence of signs and symptoms of leprosy, regardless of whether they are PB or MB case contacts. In addition, in case of indemnity, the application depends on the vaccination history and follows the following criteria: in the absence of scarring, one dose of BCG vaccine should be administered; in the presence of a scar, a dose of BCG is made; if there are two scars, do not apply BCG[4].

Although it is not a specific leprosy prevention vaccine, its effectiveness is well established in the literature, as the World Health Organization's latest BCG vaccine document cites[26].

Studies in Brazil have also confirmed the protective role of BCG and that its effectiveness is age-related, as it is most effective during the first years of life[1,9].

Another investigation showed that contact coverage went from 43% in 2003 to 59% in 2010, and that BCG-id vaccination has 60% effective protection against leprosy[7]; As well as new authors pointed out that, out of 133 household contacts evaluated, only 19.55% had two BCG-id vaccine scars and 67.67% had only one scar. There was a higher proportion of neurodermatological evaluation among those with two scars, and among non-evaluated contacts, those with no scars predominated (p value <0.0001)[19].

It can be influenced by the BCG-id vaccine in the clinical form that will make the individual sick, given that household contacts with a vaccine scar are more likely to develop paucibacillary forms of the disease[1].

It is shown by the data, regarding the knowledge about leprosy, that, although most contacts have heard about it, there are still those with fear of living with the patient and/or suffered discrimination or prejudice for being intra-household contacts, as there were testimonials from some contacts where stigma, prejudice and discrimination were very impacting on the lives of these people and their families, bringing mainly emotional/psychological suffering.

It is believed that stigma and prejudice are central issues in leprosy and perhaps the most mentioned aspects in the publications on perceptions/representations involving this theme, as it seems to be intrinsic to it due to its history as a millenary disease and that the associated stigma This disease is due to its prevalence and intensity in different societies and in different historical periods. It is known that the disease is stigmatizing and, with its social and historical determinants, has a past of isolation and discrimination of patients and families and the integration of the leprosy program in primary care is considered an effective strategy for the elimination of the disease and decreased stigma[25].

Thus, the importance of health services offering psychological assistance to patients and their contacts, as well as health education activities for the general population, emerges.

Regarding household characteristics, 53.8% had their own home, 44.2% had up to six rooms and 40.4% had seven rooms. A study conducted in Minas Gerais states that "small houses support large families, increasing opportunities for disease transmission"[27]. It was pointed out in a research carried out in Pará,[8] that the number of rooms influences the transmission of the disease and a study also mentioned that fifty (50%) of leprosy cases in children under 15 years had contact with a bacillus carrier at home[3], Therefore, this variable is important to know the dynamics of this disease.

It is recommended that the Ministry of Health and the State and Municipal Health Secretariats should value more the control of intra-household contacts as well as stimulate, through training of health professionals, early diagnosis and ensure regular supply of multidrug therapy and prevention. of physical disabilities for all patients diagnosed.

Household contacts are an important link in the epidemiological chain of the disease, but it is believed from this study that it has not been given due importance, as there is no systematic and regular monitoring by the health service, even knowing that the control of contacts has been little valued and even neglected, because in health services, the control of the disease and the patient is still privileged, relegating, to a secondary level, everything that refers to contacts[5,8,].

It is believed that the surveillance of leprosy contacts has to be continuous to reduce incidence rates, especially in hyperendemic regions[9] and, when diagnosing the patients with the disease, it is necessary a detailed search for the people who live or lived with the index case[28].

The municipality, as the primary responsible for managing primary care, should be aware of the main operational and epidemiological indicators in relation to leprosy to implement or implement actions aimed at improving its monitoring and control, in a timely and efficient manner, contributing to the achievement of targets set by national bodies such as the Ministry of Health or international ones such as WHO and ILEP.

It is also considered important that the professionals involved in the development of the program's actions are qualified and have the responsibility for the correct registration of the information in filling out the SINAN, the Notification Form, the records in the medical record and other forms that exist for the control/monitoring of cases and household contacts, as well as the seriousness of data recording in health information systems so that there is no incompatibility between the recorded data and those actually found during the home visit, as verified in this research.

Among the various contact control strategies suggested:

- Train health professionals about the epidemiology of the disease to understand the importance of controlling household contacts and social contact, according to the guidelines [4], as one of the fundamental pillars for breaking the epidemiological chain of disease transmission;
- Improve notes on medical records and other contact control forms;
- Enhance patient guidance and contacts regarding the importance of patient surveillance by conducting neurodermatological evaluation for five years and applying BCG-id vaccine according to guidelines[4] in force;
- Empower communicants to perform self-assessment of their own body for changes suggestive of the disease;
- Decentralize contact surveillance actions to the basic health units of the municipality, making the health service closer to the user;
- Actively seek contacts for neurodermatological assessment and BCG-id vaccination;
- Critically manage and analyze indicators on contact surveillance by health units and municipal and state health surveillance, and trigger actions that can improve the quality of care and control of endemic diseases.

Greater integration between population and primary care should also be encouraged, a crucial step for health education to be worked together and to begin the process and elimination of the disease[29]. It is necessary that all actions of Primary Care to control a disease of compulsory notification, such as leprosy, must be connected with Health Surveillance in order to be able to analyze the health situation of the population and to plan effective actions in accordance with the needs[29].

It is pointed out that this will be possible when there is the effective implementation of health care networks with all their attributes, with the Basic Health Unit as the health system organizer, with the construction of thematic health care networks that can bring better results for the control of acute conditions and chronic conditions such as leprosy[30].

CONCLUSION

In this study, we identified the profile of households and household contacts in households with one or more leprosy cases after notification of the first case of the disease.

It is understood that the control of household contacts is one of the strategic pillars for breaking the chain of disease transmission at home, associated with early diagnosis, treatment and prevention of physical disabilities of all patients.

Health facilities should be equipped with contact control mechanisms, analyzing the epidemiological and operational indicators of the program and carrying out health education actions to empower patients and their contacts in creating links with health professionals.

The results of this study are expected to serve as a source of knowledge, stimulating the emergence of new research on family and social contacts of leprosy patients and home as a factor of transmission of this disease.

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