



PROFILE OF MORBIDITY AND MORTALITY OF TUBERCULOSIS CASES

PERFIL DE MORBIMORTALIDADE DOS CASOS DE TUBERCULOSE

PERFIL DE MORBILIDAD Y MORTALIDAD DE CASOS DE TUBERCULOSIS

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ABSTRACT

Objective: analyzing the morbidity and mortality of tuberculosis cases in the city of Maceio from 1999 to 2012. **Method:** an ecological study with data from the Notifiable Diseases Information System (SINAN), Mortality Information System (SIM), from 1999 to 2012. **Results:** there were reported in the period in Maceio 8.297 new TB cases and 806 deaths from this disease. It was observed that in the first year the city had assessed the incidence rate of 62,4 per 100.000 inhabitants, and in the last year studied 51,90 per 100.000 inhabitants. Regarding the indicator specific mortality data presented in 1999, the mortality rate of 9,6 and 4,3 in the last year evaluated. The incidence of this disease is high. **Conclusion:** The most effective way to fight TB is the active search for respiratory symptoms, epidemiological surveillance of contacts and the proper treatment of cases. **Descriptors:** Tuberculosis; Morbidity; Mortality.

RESUMO

Objetivo: analisar a morbimortalidade dos casos de tuberculose no Município de Maceió no período de 1999 a 2012. **Método:** estudo ecológico realizado com dados oriundos do Sistema de Informação de Agravos de Notificação (SINAN) e do Sistema de Informação de Mortalidade (SIM), de 1999 a 2012. **Resultados:** foram notificados no período em Maceió 8.297 novos casos de tuberculose e 806 óbitos decorrentes desta doença. Observou-se que no primeiro ano avaliado o município apresentou a taxa de incidência de 62,4 para cada 100.000 habitantes, e no último ano estudado 51,90 por 100.000 habitantes. Quanto ao indicador de mortalidade específica os dados apresentam em 1999, a taxa de mortalidade de 9,6 e no último ano avaliado 4,3. A incidência dessa doença está em nível elevado. **Conclusão:** a forma mais eficaz de combater a tuberculose é pela busca ativa dos sintomáticos respiratórios, vigilância epidemiológica dos contatos e o tratamento adequado dos casos. **Descritores:** Tuberculose; Morbidade; Mortalidade.

RESUMEN

Objetivo: analizar la morbilidad y la mortalidad de los casos de tuberculosis en la ciudad de Maceió, de 1999 a 2012. **Método:** es un estudio ecológico de los datos del Sistema de Información de Agravamientos de Notificación (SINAN) y del Sistema de Información sobre Mortalidad (SIM), 1999 a 2012. **Resultados:** se registraron en el período en Maceio 8.297 nuevos casos de tuberculosis y 806 muertes por esta enfermedad. Se observó que en el primer año la ciudad se había evaluado la tasa de incidencia de 62,4 por 100.000 habitantes, y en el último año estudiado 51,90 por cada 100.000 habitantes. En cuanto a los datos de mortalidad de indicadores específicos presentados en el año 1999, la tasa de mortalidad de 9,6 y 4,3 en el último año evaluado. La incidencia de esta enfermedad es alta. **Conclusión:** la manera más eficaz para luchar contra la tuberculosis es la búsqueda activa de sintomáticos respiratorios, la vigilancia epidemiológica de los contactos y el tratamiento adecuado de los casos. **Descriptores:** Tuberculosis; Morbilidad; Mortalidad.

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INTRODUCTION

Tuberculosis is now known as one of the main causes of mortality in the world, a serious public health problem. According with the data from the Epidemiological Bulletin of the Ministry of Health, 2010 have been reported 6,2 million TB cases in the world, with an incidence of 5,4 million new cases. "India and China account for 40% of reported cases and Brazil is among the 22 countries which account for 82% of tuberculosis cases in the world".¹

In order to prioritize TB control measures, the WHO has set the 22 countries where the greatest absolute number of cases occurs. These in descending order are: India, China, Indonesia, Nigeria, Bangladesh, Pakistan, Ethiopia, South Africa, Democratic Republic of the Congo, Russia, Kenya, Vietnam, Tanzania, Brazil, Uganda, Zimbabwe, Mozambique, Thailand, Afghanistan, Cambodia and Myanmar.²

In 1993, the World Health Organization (WHO) declared TB a global emergency. After 5 years, the National Tuberculosis Control (NPTC) arises, which implemented the Directly Observed Treatment (DOT) with a focus on reducing morbidity and mortality and disease transmission.³

Due to high rates of incidences of infectious diseases, the United Nations, in 2000, established eight Millennium Development Goals (MDGs); among those, tuberculosis is included in the 6th goal. WHO aims to significantly reduce the burden of disease by 2015, through the Global Plan to Fight Tuberculosis 2011-2015, the plan consists of 06 components:

- Expanding DOTS (Directly Observed Treatment) quality;
- Targeting TB/HIV, multidrug-resistant tuberculosis (MDR TB) and the needs of poor and vulnerable populations;
- Strengthening the health system based on primary care;
- Empowering people with TB and organized civil society;
- Involving all health care providers;
- Enabling and promoting researches.¹

In August 2005, during the course of the 55th WHO Regional Committee in Maputo, Mozambique, Ministers of Health of African countries also declared TB an African Emergency by favorable conditions that they present to the development and spread of disease, including that worth mentioning are the poor living conditions, the emergence of the AIDS epidemic, factors related to

inefficient control programs, not trained professionals to work in the area and also lack of public policies.²

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*, also called Koch's bacillus. Transmission occurs via the airways, or through droplets containing the bacilli expelled by a patient with pulmonary tuberculosis when coughing, talking or exhale, mainly indoors, this mainly affects the lungs but can spread to other organs and tissues.⁴

The disease is manifested by an infectious syndrome of chronic illness with low-grade fever, night sweats, chest pain, loss of appetite, anorexia, weight loss, dry cough with sputum or apathy for over three weeks, which can develop into blood spitting and hemoptysis. In extrapulmonary forms, the clinical picture varies depending on the location and severity of the case.⁵

The treatment lasts six months and the medication is free, available by the Ministry of Health, distributed by the Ministry of Health and dispensed by health facilities; the reference units, for special situations of tuberculosis (pregnant women, the elderly, TB + HIV, liver disease, diabetes and severe cases). In Maceio references are: the University Hospital, the Teaching Hospital Dr. Hólvio Auto, II Health Center.⁶

Brazil is in 17th position in number of cases among 22 countries with the highest incidence of tuberculosis, with 32 cases/100.000 inhabitants per year. "The incidence of the disease in the country varies according to geographic region, with lower rates in the Midwest, South and Northeast (21,90, 33,18 and 38,77 cases/100.000 inhabitants, respectively)".⁷

In Alagoas, according to the Ministry of Health, in 2004 there were recorded in SINAN 1.324 new cases of tuberculosis. The incidence per 100 thousand inhabitants was 44,9 for all shapes and 26,4 for contagious cases. The cohort of treatment, considering the priority municipalities showed a healing of 72,1%, being below the national target which is 85%. Abandonment was 10,5%, deaths from tuberculosis of 5%, transfer of 12,2% and closing 78% of cases. The co-infected with TB / HIV was 1,8%.⁸

According to the criteria of the Ministry of Health, Alagoas highlights seven priority cities (Maceio, Arapiraca, Boulder, Palmeira dos Índios, União dos Palmares, Rio Largo and São Miguel dos Campos). These municipalities account for 60% of cases in the state. The capital Maceio contributes to 43,3% of cases in the state.⁸

According to the report of Alagoas, Maceio presented incidence rate among new cases was 55,0/ 100.000 inhabitants in the last 10 years, this indicator has shown a downward trend, similar to the incidence rate in Brazil. In 2010, 56,1% of new TB cases, held Directly Observed Treatment (DOT). "Assessing the outcome of the cases, in 2009 the state got 69,1% of cure and 10,5% dropout among new TB cases. The goal is to reach 85% cure and less than 5% dropout." Among the studied cases of retreatment, 22,4% were taking culture. The Ministry of Health's goal for 2015 performs examination of culture in 80% of cases of retreatment.⁹

According to the Epidemiological Bulletin of the Municipal Health Department, in the first half of 2008 there were reported 111 cases of tuberculosis in the city of Maceio, where we observed the concentration of larger numbers of cases in II, V and VII districts. According, to the report the high rate of incidence in the districts, can be attributed to a high concentration of slums and low-income population in these places.¹⁰

Interest in the subject has emerged since 2008 due to a report that promoted through Radio Diffusion Portuguese (RDP Africa) the interview with the Minister of Health of Guinea-Bissau, which revealed the epidemiological situation of tuberculosis in the country, saying that the high rate is justified by the poverty rate, poor hygiene and also due to co-infection with HIV.

OBJECTIVE

- Analyzing the morbidity and mortality by tuberculosis in the city of Maceio, from 1999 to 2012.

METHOD

This is an ecological study. The study was conducted in the City of Maceio, State Capital of Alagoas. There were taken as primary sources the System database of Notifiable Diseases Information - SINAN and Mortality Information System - SIM. The data were collected between June to September 2013, the Municipal Health Maceio. The following variables were analyzed: clinical forms, health districts and the gender. The data of new cases of tuberculosis were reported in the selected period of 1999-2012, living in the city of Maceio. Following, the figures were built through the Microsoft Excel program. The epidemiological study of the distribution was established using descriptive statistics, calculating the measurements of position and variability as well as absolute and relative frequency percentage calculations.

The project was submitted to the Ethics Committee of the Federal University of Alagoas; it was approved with opinion number 006683-2010-30 and collection performed after authorization from the Municipal Health of the City of Maceio.

RESULTS

From 1999 to 2012, the city of Maceio notified 8.297 new TB cases of all clinical forms. Data on tuberculosis incidence rate in the years 1999 to 2012 per 100 thousand inhabitants are shown in Figure 1.

It was observed that in the first year rated the city of Maceio presented an incidence rate of 62,4 per 100.000 inhabitants, and in the last year studied, 51,90 (2012) data show a reduction of 10,5% in thirteen years.

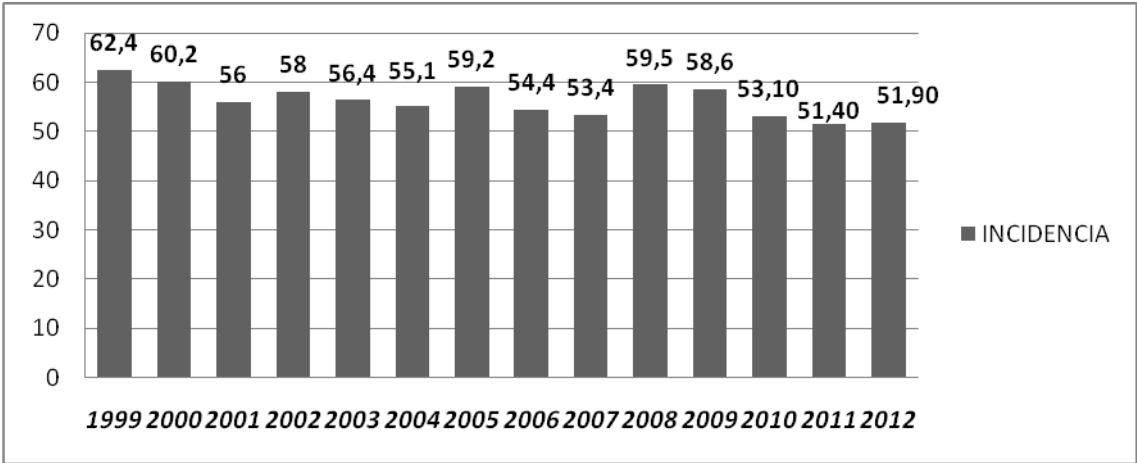


Figure 1. Incidence rate of tuberculosis per 100,000 inhabitants, Maceio/AL, 1999-2012. Source: SINAN/SMS/Analysis Coordination Epidemiological, Maceio, 2013.

Regarding the clinical forms of tuberculosis, the pulmonary form was predominant.

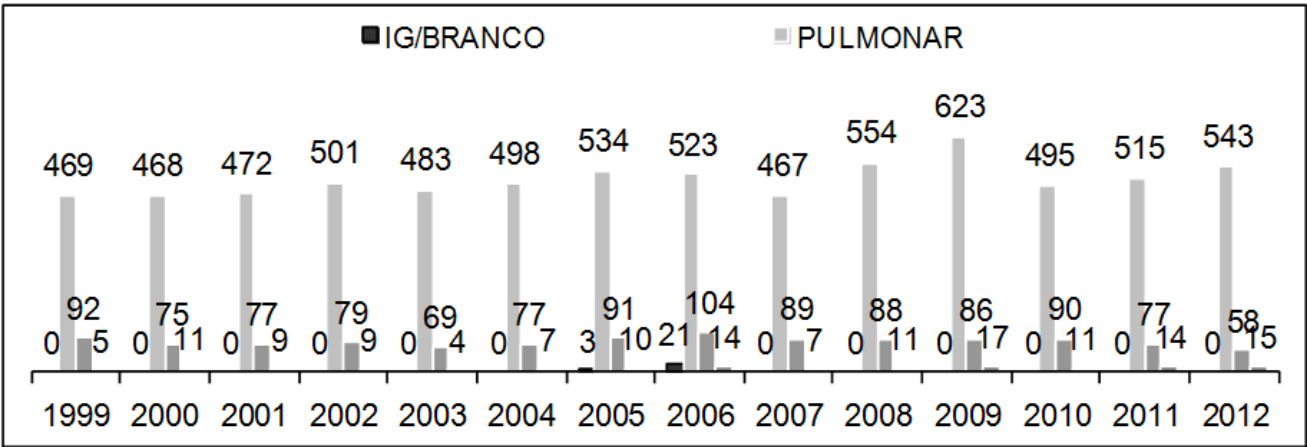


Figure 2. Distribution of cases of tuberculosis in the clinical form, Maceio - AL, 1999-2012. Source: SINAN/SMS, Epidemiological Analysis of Coordination, Maceio, 2013.

Data on cases of tuberculosis in the health districts of Maceio are presented in Table 1, where there is a higher concentration of cases in the districts II, V and VII.

Table 1. Distribution of new cases of tuberculosis according to sanitary districts, Maceio - AL 1999 a 2009.

Year	1 st district	2 nd district	3 rd district	4 th district	5 th district	6 th district	7 th district	Total
1999	78	141	39	67	97	18	120	560
2000	66	151	37	66	95	27	109	551
2001	79	114	35	71	113	21	118	551
2002	59	138	37	82	95	35	114	560
2003	61	130	30	73	85	29	115	523
2004	60	141	35	64	85	33	128	546
2005	60	112	39	90	110	41	150	602
2006	80	115	31	81	100	33	146	586
2007	74	116	33	52	101	35	149	560
2008	75	143	37	70	115	51	158	649
2009	710	145	39	87	129	57	178	1345
Total	1402	1446	392	803	1125	380	1485	7033

Source: SINAN/SMS/ Coordination of Epidemiological Analysis, Maceio, 2010.

It is observed that in Table 2, which has 13 years studied, men accounted for 62,8% of new cases of tuberculosis and women 37,2%, showing that men are more affected by this disease. This result can be explained by the reflection time consuming and low demand for men to health services, leading to late diagnosis.

Table 2. Distribution of new cases of tuberculosis according to gender, Maceio - AL, 1999 a 2012.

Year	Male	%	Female	%	Total
1999	302	61,5%	189	38,5%	491
2000	321	66,7%	160	33,3%	481
2001	265	57,9%	193	42,1%	458
2002	304	62,8%	180	37,2%	484
2003	303	63,1%	177	36,9%	480
2004	329	67,4%	159	32,6%	488
2005	349	65,2%	186	34,8%	535
2006	308	61,4%	194	38,6%	502
2007	303	60,2%	200	39,8%	503
2008	340	60,9%	218	39,1%	558
2009	347	63,2%	202	36,8%	549
2010	370	62,18%	225	37,82%	595
2011	360	60%	246	40%	600
2012	400	65,04%	215	34,95%	615
Total	4601	62,69%	2744	37,31%	7339

Source: SINAN/SMS/ Coordination of Epidemiological Analysis, Maceio, 2013.

Figure 3 presents data specific mortality from tuberculosis in the city of Maceio, from 1999 to 2012. And were recorded 806 deaths from tuberculosis in the Mortality Information System (SIM). The data have tuberculosis mortality rate in the city, where it appears that the first reporting year (1999), a mortality rate of 9,6 was found for every 100.000 inhabitants, and in 2002, there was an increase for 12/100.000 inhabitants of this coefficient and the most common the pulmonary form, equivalent to 94% of deaths. And the lower mortality rate from tuberculosis specifies the period was in 2007 (3,6 per 100.000 inhabitants) in the same year that there was a lower incidence rate in the city.

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Last year assessed the data present a specific

mortality rate of 4,3 per 100.000 inhabitants.

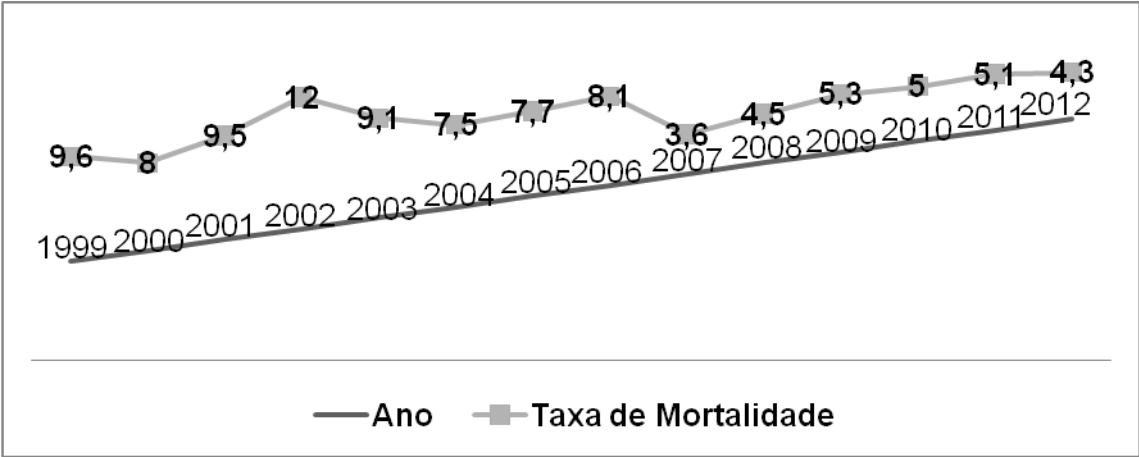


Figure 3. Mortality rate by TB/100,000 inhabitants, Maceio - AL, 1999-2012. Source: SIM/SMS/Coordination of Epidemiological Analysis, Maceio, 2013.

DISCUSSION

According to the Ministry of Health report, the National Program for Tuberculosis control increased its coverage, from 42,6% in 2005 to 51% of the National Health System network in 2006, reaching a rate of 61% in the priority cities. However, Maceio continues to show very high TB incidence rates.¹¹

TB incidence in the city of Maceio are important epidemiological indicators that should be analyzed by the Tuberculosis Control Program, in order to evaluating their actions or performance in the city, and also by the local government; therefore, this situation shows that underdevelopment region, since the largest number of cases occurred in areas where there is hunger, poverty and poor living conditions.

According to Okamura, in 2000, the Ministry of Health launched the National Program for Tuberculosis Control (NPTC) establishing disease control, giving priority to 328 municipalities, of which 7 were selected from the State of Alagoas, including the City of Maceio. In the period 2001-2009 there was a decrease in the number of cases and consequently the incidence rate leading to believe that that program had an impressive action in reducing cases.¹²

In 2004 and 2007, the Brazilian government once again invested in NTP through training strategies for health professionals, and instituted awards for priority municipalities with more than 90% of closing cases of tuberculosis in 2004 and for those who reached 75% of that target in 2006.⁷ in 2004, Alagoas was selected with 02 municipalities: Maceio and União dos Palmares.

Poverty, housing situations overcrowded by low socioeconomic conditions represent facilitating factors to produce tuberculosis. Upon occurrence of an event may result in

increased transmission of the bacillus, thereby increasing prevalence of tuberculosis infection and therefore the increase in disease incidence.¹³

It can be observed in this study as the predominant pulmonary form in all the years analyzed (1999-2012). These values are consistent with those parameters presented by the Recommendations Guide for Tuberculosis Control, which shows that 90% of TB cases are pulmonary form, with 60% of active tuberculosis. The cases of smear positive pulmonary tuberculosis are transmitted forms of the disease, so it is necessary early detection of active pursuit of these cases to interrupt the chain of transmission.¹⁴

Authors state that the reduced access to health services is also a reflection of poverty and that it interferes with the incidence of the disease is aggravated by the delay of diagnosis and treatment, prolonging the period of infectiousness of patients and increasing the risk of infection among their contacts. Poverty and prejudice cause TB patients seek health services only when symptoms are exacerbated, hindering their daily activities.¹³

Treating on mortality related to tuberculosis in São Paulo was found the same result, ie, higher incidence in men than in women, this can be explained by the conduct of the men who are careless of their health than women.¹⁵ As women seek health services, they are more likely to receive a diagnosis of tuberculosis. The education of women, the insertion to the labor market, also contributed to the early diagnosis.¹⁶

It is also noticed that in 14 years studied, men accounted for 62,69% of new cases of tuberculosis and women 37,31%. This may reflect the low demand for men to health services which implies greater vulnerability of tuberculosis. The population most affected by

tuberculosis is an adult male. A study in Minas Gerais also made the male as mostly affected, 31.690 cases, corresponding to 67,0%.¹⁷

According to the survey by the Ministry of Health, quoted by the National School of Public Health (ENSP), where they were heard about 250 experts (Brazilian medical society, anthropologists, psychologists), members of the National Council of Department of Health - CONASS and National Council of Municipal Secretaries of Health - CONASEMS, men do not usually attend the clinics because of three main barriers: cultural, institutional and medical.¹⁸

Among the cultural barriers, the concept of masculinity prevailing in society prevails, in which man is thought immune to disease, considered by him weak signal. Man as a provider cannot leave work to go to a query. They do not recognize the disease as something inherent to human condition; therefore find that health services are aimed women, children and elderly. Also, another difficulty is that they do not believe in prophylaxis, which undermines the work on prevention.¹⁹

Regarding the institutional barriers, the survey showed that men are not heard in the units properly, so little attend these places, and also because many of the services to health are formed by professional women. This situation causes in men the feeling of not belonging to that space. On medical barriers, the experts listed the lack of proper behavior of health professionals and consultations with very short.¹⁸

The mortality and the mortality of tuberculosis are important parameters for evaluating the severity of endemic disease, delay in case detection, early treatment and its effectiveness. The lack of reporting of cases that evolved to death may suggest that these patients were diagnosed only in the most advanced form, when were admitted for diagnosis and treatment, and when analyzing tuberculosis through SINAN, gives the false impression that there is a reduction of tuberculosis cases and their severity. For advances humanization of health practices is needed by professionals in the knowledge of records and reports.²⁰⁻²¹

The data revealed in this study are highly relevant indicators for the Brazilian public health, especially for the city of Maceio. Managers and health professionals need to evaluate the active search measures, early diagnosis, treatment, decreased abandonment of treatment, housing conditions and healing, particularly in disadvantaged populations and male. The figures show it is necessary to

reflect on them and changing attitudes. Therefore, it can be seen that even with advances people are still dying from tuberculosis, which is a disease that there is treatment and cure.

CONCLUSION

The city of Maceio notified in the Information System of Notification - SINAN 8,297 new TB cases of all clinical forms.

In the first year rated Maceio-AL, showed the incidence rate 62,4 per 100.000 inhabitants. And in 2012 the last year evaluated, 51,90/100.000 with a reduction of 10,5% in thirteen years.

The health districts that have higher numbers of cases were: II, V and VII.

The predominant clinical form was pulmonary.

The percentage of cases was higher in men (62,69%) than in women (37,31%).

The City of Maceio notified in the Mortality Information System - SIM, 806 deaths.

In 1999 we find a specific mortality rate of 9,6 per 100.000 inhabitants.

Pulmonary form is the most common, representing 94% of deaths.

In 2002, there was an increase in the specific mortality rate by tuberculosis, to 12/100.000 inhabitants.

In the last reporting year, 2012, the figures show that over the entire period there was a decrease in the specific mortality rate, reaching 4,3 per 100.000 inhabitants. We can infer that the decentralization of tuberculosis treatment for primary care may have had an impact in reducing mortality from this disease.

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