Secular trend of leprosy new cases diagnosed in Brazil: 1987 - 2006

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Spatial distribution of NCDR (10 thousand inhabitants) smoothing* by geographical micro areas (Brazil - 2006)

* Kernel method
Fonte: DATASUS
### Introduction
The WHO has limited itself to comparing trends in the disease in various countries based solely on epidemiological indicators especially coefficient of prevalence and new case detection rate (NCDR).

New case detection trend during the period 2001–2005 by WHO region

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>New case detection during the year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
</tr>
<tr>
<td>Africa</td>
<td>39,612</td>
</tr>
<tr>
<td>Americas</td>
<td>42,830</td>
</tr>
<tr>
<td>South–East Asia</td>
<td>668,658</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>4,758</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>7,404</td>
</tr>
</tbody>
</table>
Introduction

The indicator of NCDR reflects the risk of transmission, and depends on operational factors, in particular access to diagnosis and treatment.

By access is meant the local availability of diagnosis and treatment.
Objective

To analyze the trends in occurrence of new leprosy cases in Brazil, in the light of changes in public health policy in the period 1987-2006.
Method


A linear trend was used to analyze separately the detection rate during the two decades 1987-1996 and 1997-2006.
**Method**

The cut-off point was the year with the peak detection rate: 1997.

To analyze the *potential increase in accessibility to diagnosis and treatment*, we compared the proportion of cases diagnosed within the health services and municipalities over a twenty-year period split up into four five-year intervals.
Results

The Brazilian NCDR over the last 20 years (1987 to 2006) showed an important increase until 1997, increasing more or less steadily from 1.4 (cases per 10,000 inhabitants) in 1987 to a peak of 2.8 in 1997.
From 1997 to 2000 there was a slight decrease, then a slight increase from 2001 to 2003, followed by a marked drop from 2.8 to 2.4 during 2004-2006.

Source: 1987 to 2001 SES
2002-2006 SINAN/DATASUS/SES/MS
Results

Comparing NCDR for the two decades 1987-1996 and 1997-2006 and the corresponding trend lines.

The first one from 1987 to 1996 has a positive slope coefficient ($\beta_1=0.09$), characterizing an average increase estimated at 78.8 %.
Leprosy new case detection rate per 10,000 inhabitants for Brazil: 1987 to 1996

Source: 1987 to 2001 SES
2002-2006 SINAN/DATASUS/SES/MS
Results

The second period from 1997 to 2006 shows a negative slope coefficient ($\beta_1 = -0.003$), characterizing an average decrease estimated at 15.2%, when the slope coefficient is applied at the first and last year of each 10 year period, respectively.
Leprosy new cases detection rate per 10,000 inhabitants for Brazil: 1997 to 2006

\[ y = -0.0034x + 2.6855 \]

Source: 1987 to 2001 SES
2002-2006 SINAN/DATASUS/SES/MS
Ratio of number of cases of leprosy by number of health services and number municipalities regarding period of 5 years

- **2002-2006**: 67 cases, 23 municipalities
- **1997-2001**: 85 cases, 60 municipalities
- **1992-1996**: 140 cases, 110 municipalities
- **1987-1991**: 158 cases, 126 municipalities

Legend:
- Blue bar: number of cases
- Red bar: number of municipalities or health services

Ratio: number of cases / number of health services
**Results**

The Brazilian population increased by about 10% during each five-year period.

The number of new cases detected increased 32.7% between the first and second periods.

During the last period (2002-2006), the increase in the number of cases detected slowed down until it reached 3.6%.
Results

On the other hand, the number of health service providers increased greatly during each period (from 52% to 177.9 %). The number of municipalities also showed a significant increase during the period 1997 to 2001, being twice the number for the previous period.
Brazil: Total number (and average) of new cases of leprosy diagnosed over five yr period; total number of health services providers, and total number of municipalities. Increase in the percentage over the previous 5 year period (1987 -2006).

<table>
<thead>
<tr>
<th>Five year period</th>
<th>Total nº of new cases</th>
<th>Average of new cases</th>
<th>Percentage increase over previous 5-yr period</th>
<th>Total number of health services provider</th>
<th>Percentage increase over previous 5-yr period</th>
<th>Total number of municipalities</th>
<th>Percentage increase over previous 5-yr period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987-1991</td>
<td>133,824</td>
<td></td>
<td></td>
<td>1,063</td>
<td></td>
<td>846</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26,765</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1992-1996</td>
<td>177,605</td>
<td></td>
<td>32.7</td>
<td>1,616</td>
<td>52.0</td>
<td>1,267</td>
<td>49.8</td>
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<tr>
<td></td>
<td>35,521</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1997-2001</td>
<td>215,871</td>
<td></td>
<td>21.6</td>
<td>3,569</td>
<td>120.9</td>
<td>2,538</td>
<td>100.3</td>
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<tr>
<td></td>
<td>43,174</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>2002-2006</td>
<td>223,711</td>
<td></td>
<td>3.6</td>
<td>9,919</td>
<td>177.9</td>
<td>3,338</td>
<td>31.5</td>
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<tr>
<td></td>
<td>44,742</td>
<td></td>
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</tbody>
</table>
Conclusion

- The Brazil seems to have passed through the transition period to its target of a constant decline in the detection rate, that represents the limit of increase of incidence of leprosy.

- Even with continuous transmission in some areas of the country, the increase in diagnostic capability shows that the country is on its way to eliminating leprosy as public health problem.
Obrigada!

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