Most Common Indicators for Measuring Health Inequalities

Where applicable, depending on the type of indicator, the same example is used to facilitate interpretation and comparison among indicators: infant mortality (IM) in the Andean area, calculated and interpreted according to different methods.

The health variable used in the examples is the infant mortality rate (IMR) per 1,000 live births (LB), obtained from PAHO’s basic indicators for 1997. The other demographic indicators used come from the same source. The socioeconomic variable was gross national product (GNP) per capita, adjusted for purchasing power parity (PPP), obtained from the World Bank and also published in PAHO’s basic indicators.

Table 1 shows the basic procedures for calculating any of the indicators included in this article on the basis of secondary data.

Rate ratio and rate difference

Two groups in extreme situations are compared, for example social class V (or V + IV) and social class I (or I + II), or two geographic units with extreme socioeconomic indicators. However, it is recommended that the groups are not so extreme that the summary measure masks most of the existing health inequalities nor so broad that the summary measure conceals the real extent of the inequities in the population.

The interpretation is based on the ratio of, or the difference between, the mortality or morbidity rates of the lowest versus the highest socioeconomic group: the higher the value of the ratio or the difference, the greater the inequality. When percentiles are used, the terms of the ratio or the difference are the lowest and highest quintiles. The most well-known work that has used this indicator is the Black Report, published in the 1980s, which analyzed mortality data by social class in England and which, together with other later publications that employed the same procedure, gave rise to the methodological debate over how to measure inequalities in health.

Effect index

Some measures of effect, such as rate ratio and rate difference, take into account only inequalities between the two socioeconomic groups being compared, ignoring those that exist between groups excluded from the comparison. The effect index does not have this limitation because it describes the differences between all population groups through the parameters of a regression model in which the dependent variable tends to be a mortality or morbidity rate and the independent variable is generally an indicator of socioeconomic status. If the relationship between these variables is linear, the slope of the regression line is the absolute effect index and is interpreted as the change that occurs in the dependent variable when the independent variable is modified by one unit (for example, a thousand dollars of GNP).

The biggest drawback to this index is the risk of using inappropriate regression models or estimation methods, such as when the relationship is not linear or the groups are of very different size. In the first case, a linear model cannot be applied, and in the second, ordinary least squares cannot be
used as an estimation procedure. To use linear regression it is recommended to confirm, first, that the basic assumptions of the regression are met and, second, that linearity is present. Other models, such as Poisson regression or logistic regression, may be more appropriate.

### Rate ratio and rate difference

**Examples of questions that can be answered:**

- How many more children under 1 year of age die in the poorest country of the Andean area compared to the richest country?
- How many deaths does that figure represent in absolute numbers?

**Data needed:**

Table 2.

**How to calculate:**

1. Calculate the infant mortality rate (IMR) in the geographic units under study:
   \[ IMR = \frac{\text{No. of deaths of under 1 year of age}}{\text{No. of live births}} \times 1,000 \]

   For Venezuela, the country with the highest GNP:
   \[ IMR = \frac{12,496}{568,000} \times 1,000 = 22 \text{ per 1,000 live births}. \]

   For Bolivia, the country with the lowest GNP:
   \[ IMR = \frac{14,750}{250,000} \times 1,000 = 59 \text{ per 1,000 live births}. \]

2. Calculate the rate ratio (RR) between the country with the worst economic situation and the country with the best situation:
   \[ RR = \frac{\text{IMR of the country with lowest GNP}}{\text{IMR of the country with highest GNP}} = \frac{59}{22} = 2.68 \]

   Calculate the rate difference (RD) between the country with the worst economic situation and the country with the best situation:
   \[ DT = 59 – 22 = 37 \text{ per 1,000 live births}. \]

   Calculate this difference in absolute numbers, bearing in mind that the number of live births in the country with the worst situation is 250,000:
   \[ 250,000 \times 37 / 1,000 = 250 \times 37 = 9,250 \]

**Interpretation:**
- In the country of the Andean area with the worst socioeconomic status (Bolivia), almost three (2.68) times more children under 1 die than in the country with the best situation (Venezuela).
- The difference between the IMR of these two countries is 37 per 1,000 live births.
- In absolute numbers, this means that in Bolivia there were 9,250 more deaths of children under 1 than would have been expected if the country’s situation were equal to that of Venezuela.

### Effect index

**Examples of questions that can be answered:**

- How much does infant mortality vary in relation to per capita GNP in countries of the Andean area?

**Data needed:**

Table 2

**How to calculate:**

1. Calculate the IMR for the geographic units
2. Do a regression analysis of the relationship between the health variable (y) and the socioeconomic variable (x).

In our example, the linear regression model is well adjusted (Figure 1). The estimates obtained are reproduced below from the output of the STATA program, version 6.0:

```
regress tasa pnb
```

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F(1, 3)</th>
<th>Prob &gt; F</th>
<th>Adj R-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>854.25</td>
<td>1</td>
<td>854.25</td>
<td>47.70</td>
<td>0.006</td>
<td>0.9408</td>
</tr>
<tr>
<td>Residual</td>
<td>54.51</td>
<td>3</td>
<td>18.18</td>
<td></td>
<td></td>
<td>0.9211</td>
</tr>
<tr>
<td>Total</td>
<td>908.76</td>
<td>4</td>
<td>229.66</td>
<td></td>
<td></td>
<td>0.925</td>
</tr>
</tbody>
</table>

| rate     | Coef. | Std. Err. | t     | P>|t| | [95% Conf. Interval] |
|----------|-------|-----------|------|-----|---------------------|
| GNP      | -0.0071 | 0.0010 | -6.90 | 0.006 | -0.0104 to -0.0038 |
| _cons   | 75.69 | 5.85 | 12.94 | 0.001 | 57.07 to 94.31 |

Similar results can be obtained with other statistical programs or with an Excel spreadsheet, although the latter does not routinely include standard errors or confidence intervals.

**Interpretation:**
- The slope of the regression line \(b = -0.007\) is equal to the effect index and indicates that, on average, IMR declines by 0.007 deaths per 1,000 live births for each dollar increase in PPP-adjusted GNP, which means that for every thousand dollars of increase in GNP, the average IMR declines 7 units. The sign of the regression coefficient is negative because as GNP increases, IMR falls. The standard error (4.2566) gives an idea of the precision with which IMR can be estimated in relation to GNP.

### Table 2. Data needed to calculate rate ratio, rate difference, and effect index. Countries of the Andean area, 1997.

<table>
<thead>
<tr>
<th>Country</th>
<th>GNP</th>
<th>LB</th>
<th>Deaths</th>
<th>IMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>8,130</td>
<td>568</td>
<td>12,496</td>
<td>22</td>
</tr>
<tr>
<td>Colombia</td>
<td>6,720</td>
<td>889</td>
<td>21,336</td>
<td>24</td>
</tr>
<tr>
<td>Ecuador</td>
<td>4,730</td>
<td>308</td>
<td>12,012</td>
<td>39</td>
</tr>
<tr>
<td>Peru</td>
<td>4,410</td>
<td>621</td>
<td>26,703</td>
<td>43</td>
</tr>
<tr>
<td>Bolivia</td>
<td>2,860</td>
<td>250</td>
<td>14,750</td>
<td>59</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>--</td>
<td>2,636</td>
<td>87,297</td>
<td>33</td>
</tr>
</tbody>
</table>

**Note:** GNP: gross national product per capita, adjusted for purchasing power parity LB: number of live births (thousands). Deaths: number of deaths of children under 1 year of age IMR: infant mortality rate per 1,000 live births.
**Population attributable risk (PAR)**

Population attributable risk is one of the best-known indicators of total impact in the field of health. Also known as the etiologic fraction, it is much used in epidemiology. It is defined as the difference between the general rate and the rate of the highest socioeconomic group, expressed as a percentage of the general rate; the more this diverges from zero, the greater the inequality and the greater potential for reduction of inequality. This makes it possible to estimate the proportion of the general rate of morbidity or mortality that it would be possible to eliminate if all the groups had the same or lower rates of mortality or morbidity as the highest socioeconomic group. In the publication of Kunst and Mackenbach on socioeconomic inequalities in the field of health, the reference group is the one with the highest socioeconomic status, that does not always coincide with the group with the lowest rate. Depending on the objective of the study, it may be of interest to measure inequality with respect to the lowest observed rate, so that the reference group for calculation of PAR could be the group with the lowest observed value.

PAR can also be calculated through a regression in which the dependent variable (y) is mortality or morbidity and the independent variable (x) is socioeconomic status. In this case the value used for the rate of the highest socioeconomic group is the value estimated through regression, instead of the observed value of the rate. It is necessary to choose the regression model with the best fit, which normally implies choosing among simple linear regression, logistic regression, and Poisson regression. The latter is especially appropriate for modeling the relationship with rates for very infrequent events.Using PAR one can also calculate the size of the reduction needed in each group to reach full equality, an indicator that is useful for decision-making bodies because it makes it possible to estimate goals for reduction.

**Examples of questions that can be answered:**

- If all the countries of the Andean area had the same infant mortality rate (IMR) as the country with the best socioeconomic status, what percentage of infant mortality (IM) of the countries of the area could be eliminated?
- How many deaths of children could be prevented if all the countries had the same IMR as the richest country?

**Data needed:**

Table 3.

How to calculate PAR percent:

**Simplest method**

1. Calculate the IMR for the different geographical units.
2. Calculate the general IMR for the set of geographical units.
3. Calculate the difference between the general IMR and the IMR for the geographical unit with the best socioeconomic status, divide it by the general IMR, and multiply the result by 100 in order to express it as a percentage:

   \[
   \text{RAP} = \frac{\text{general rate} - \text{rate for the country with the best situation}}{\text{general rate}} \times 100
   \]

**Alternative method**

Let \( p_i \) = population fraction for the group i and \( RR \) = rate ratio for the group i. The population fraction is the quotient of the size of the group divided by the total size of the population. For example, the population of live births of Peru (621,000) represents 24% of the total population of live births, which is 2,636,000. In order to calculate the RR the rate for each country is divided by that of the country with the best socioeconomic status. For example, the rate ratio between Ecuador and Venezuela is 39/ 22 = 1.8. Thus, we would have:

\[
\text{RAP} = \frac{p_i (RR-1)}{p_i (RR-1) + 1}
\]

This calculation differs from the previous one only because of rounding, and is, of course, interpreted in an identical way.

**Table 3. Data necessary for calculating population attributable risk.**

Countries of the Andean area, 1997 (reference country: Venezuela).

<table>
<thead>
<tr>
<th>Country</th>
<th>GNP</th>
<th>LB</th>
<th>RF</th>
<th>Deaths</th>
<th>IMR</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>8,130</td>
<td>568</td>
<td>0.22</td>
<td>12,496</td>
<td>22</td>
<td>1.00</td>
</tr>
<tr>
<td>Colombia</td>
<td>6,720</td>
<td>889</td>
<td>0.34</td>
<td>21,336</td>
<td>24</td>
<td>1.09</td>
</tr>
<tr>
<td>Ecuador</td>
<td>4,730</td>
<td>306</td>
<td>0.12</td>
<td>12,012</td>
<td>39</td>
<td>1.77</td>
</tr>
<tr>
<td>Peru</td>
<td>4,410</td>
<td>621</td>
<td>0.24</td>
<td>26,703</td>
<td>43</td>
<td>1.95</td>
</tr>
<tr>
<td>Bolivia</td>
<td>2,860</td>
<td>250</td>
<td>0.09</td>
<td>14,750</td>
<td>59</td>
<td>2.86</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>87,297</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Nota:** GNP: gross national product per capita adjusted for purchasing power parity. LB: number of live births (thousands). RF: relative frequency (LB of the country/LB total). Deaths: number of deaths of children under 1 year. IMR: infant mortality rate per 1,000 live births. RR: rate ratio.
How to calculate Absolute PAR

This can be done in two ways:
1. Multiplying the value of the PAR percent by the general rate for the population:
   \[0.33 \times 33 = 10.89 \text{ per 1,000 live births.}\]
2. Subtracting the rate for the reference group from the rate for the total population:
   \[33 - 22 = 11 \text{ per 1,000 live births.}\]

Interpretation:
- If all the countries of the Andean area had the same IMR as the country with the best socioeconomic status, deaths of children under 1 would be reduced by 33%.
- Of the total of 87,297 deaths taking place in 1997, 28,808 (33% of the total) could have been avoided if all the countries had the same IMR as the country with the best socioeconomic status.

How to calculate PAR using regression

1. Calculate the morbidity or mortality rates for the geographical units.
2. Calculate the general rate for the set of geographical units.
3. Carry out a regression of the health variable \((y)\) on the socioeconomic variable \((x)\), to estimate the value of the rate for the group with the best socioeconomic status. Taking the example used with the effect index \((b = -0.007; a = 75.69)\):
   \[y = a + b \times x = 75.69 + (-0.007 \times 8,130) = 75.69 - 56.91 = 18.78.\]
4. Apply the PAR formula and multiply the result by 100 in order to express it as a percentage:
   \[
   \text{PAR} = \left( \frac{\text{general rate} - \text{rate for the country with the best socioeconomic status}}{\text{general rate}} \right) \times 100 = \left( \frac{33 - 19}{33} \right) \times 100 = 0.42 \text{ or } 42\%.
   \]

Interpretation:
- If all the countries of the Andean area had the same IMR as the country with the best socioeconomic status, deaths of children under 1 would be reduced by 42%.

How to calculate the size of the reduction necessary in each group to reach full equality

1. For each country, take the rate of the country with the best socioeconomic status (Venezuela: 22 per 1,000 live births) and multiply it by the size of the country’s own population (in the case of Bolivia: 250,000):
   \[250,000 \times 22 / 1,000 = 250 \times 22 = 5,500.\]
2. Subtract this value from the total deaths observed in the country (in the case of Bolivia: 14,750) to find the excess deaths for the group.
   \[14,750 - 5,500 = 9,250\]
   (62.7% of the 14,750 deaths registered in Bolivia).
3. This percentage can also be obtained by applying the PAR formula, taking the rate for the country being analyzed (in this case, Bolivia) as the general rate:
   \[
   \text{PAR} = \left( \frac{\text{general rate} - \text{rate for the country with the best situation}}{\text{general rate}} \right) \times 100 = \left( \frac{59 - 22}{59} \right) \times 100 = 0.627 \text{ or } 62.7\%.
   \]

The results obtained for each country of the Andean area are shown in Table 4.

It is also possible to estimate a reduction in the geographical unit considered the reference group for the study if another reference group is selected that does not belong to the group of countries included in the analysis and that has better values for the socioeconomic indicator and for the IMR than Venezuela, for example, Argentina, with a GNP of 9,530 and an IMR of 21 per 1,000. In this case, the estimated reduction for Venezuela would be:
\[
\text{PAR} = \left( \frac{22 - 21}{22} \right) \times 100 = 0.05 \text{ or } 5\%.
\]

Given that in absolute numbers 12,496 children under 1 year died in Venezuela, 625 deaths could be prevented (12,496 x 0.05) if Venezuela had the same IMR as Argentina.

Index of dissimilarity

This index can be interpreted as the percentage of all cases that would have to be redistributed in order to have the same rate for the indicator in all the socioeconomic groups. In other words, it expresses the extent to which the distribution of the health event studied in the population approximates the situation in which everyone has the same socioeconomic level. This index of dissimilarity is large when a large part of the population are in low and high socioeconomic groups and there are few people in intermediate groups. This indicator can be applied to variables related to health services, such as the number of physicians that would be necessary to redistribute among municipalities to achieve equity. Its application is doubtful for analyzing inequalities in mortality, morbidity, or other indicators of health status because speaking about redistributing deaths or disease does not make practical and ethical sense. For this reason, in this case we do not use the example of IM.

Table 4. Data necessary for calculating the size of the reduction necessary in each group to reach full equality, using PAR. Countries of the Andean area, 1997 (reference country: Venezuela).

<table>
<thead>
<tr>
<th>Country</th>
<th>GNP</th>
<th>LB</th>
<th>Deaths</th>
<th>IMR</th>
<th>Reductions in Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>Venezuela</td>
<td>8,130</td>
<td>568</td>
<td>12,496</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Colombia</td>
<td>6,720</td>
<td>889</td>
<td>21,336</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Ecuador</td>
<td>4,730</td>
<td>308</td>
<td>12,012</td>
<td>39</td>
<td>5,500</td>
</tr>
<tr>
<td>Peru</td>
<td>4,410</td>
<td>621</td>
<td>25,703</td>
<td>43</td>
<td>9,250</td>
</tr>
<tr>
<td>Bolivia</td>
<td>2,860</td>
<td>250</td>
<td>14,750</td>
<td>59</td>
<td>62.7%</td>
</tr>
<tr>
<td>Total</td>
<td>- 2,636</td>
<td>-</td>
<td>87,297</td>
<td>33</td>
<td>29,305</td>
</tr>
</tbody>
</table>

Note: GNP: gross national product per capita adjusted for purchasing power parity. LB: number of live births (thousands). Deaths: number of deaths of children under 1 year of age. IMR: infant mortality rate per 1,000 live births.
Index of dissimilarity

Examples of questions that can be answered:

- What number of physicians would it be necessary to redistribute among the countries of the Andean area to produce equal rates among the countries?

Data needed:
Table 5.

How to calculate the index:

1. Calculate the general rate for the set of geographical units.
2. Calculate the number of events or cases expected in a situation of equality, presuming that all socioeconomic groups have the same value for the health indicator as the population as a whole.
3. Calculate the difference between the number observed and the number expected for the case of equality.
4. Calculate half of the sum of the absolute values of the differences, using the formula:
   \[ \frac{1}{2} \sum_{i=1}^{n} | \text{Cases observed} - \text{Cases if there were equality} | = \frac{51,593}{2} = 25,797 \]
   Let \( n \) be the number of socioeconomic levels and \( i \) the rank order of the socioeconomic levels. The formula then gives the absolute index of dissimilarity.
5. Divide the absolute index of dissimilarity by the total number of observations and multiply by 100 to obtain the result in percentage terms (relative index of dissimilarity):
   \[ \frac{25,797}{134,957} = 0.19 \text{ or } 19\% \]

Interpretation

- For all the countries of the Andean area to have an equitable distribution of the number of physicians per 10,000 population, it would be necessary to redistribute 25,797 physicians (19% of the total) among the countries.

Slope index of inequality (SII) and relative index of inequality (RII)

Other measures of total impact in health, including the SII and the RII, can be obtained through regression analysis.

These indices are obtained through a regression analysis of a dependent health variable on an indicator of the cumulative relative position of each group with respect to a socioeconomic variable, taking into account both the socioeconomic status of the groups and the size of the population. The groups are ordered by decreasing socioeconomic status. Each group is characterized by a value (ridit) that corresponds to the average cumulative frequency of the group, ordered with respect to the socioeconomic variable. The morbidity or mortality rate of each country is the dependent variable (\( y \)).

The slope of the regression line (\( b \)) is estimated by the weighted least squares method and represents the change in mortality when the position of the group changes by one unit, or, in other words, the difference between the end points of the scale with respect to the health variable, since the respective positions of these points (their ridits) are 0 and 1 (or 0 and 100%). This slope is known as the SII. If it is negative, the two variables (\( x \) and \( y \)) vary in opposed directions. That is, when socioeconomic status worsens, mortality increases. Just as in the case of other indices based on linear regression, the relation between the two variables should fulfill the basic assumptions for regression and linearity.

To obtain the relative version of this index (the RII), Mackenbach and Kunst suggest first obtaining the quotient of \( b \) divided by the estimated value of the health variable (mortality) for the higher socioeconomic status (\( x = 1 \); the highest point in the ridit scale). This value then represents the ratio of the rate of the lower socioeconomic group to that of the highest socioeconomic group. To express the result as a rate ratio 1 is added to this value, giving the modified RII. The greater this value, the greater the difference among the groups.

This index should be used preferably when the criterion for grouping preserves a total order for the full set, so that any individual in group \( i \) has a better socioeconomic status than any individual of group \( j \) (if \( j < i \)). When data are grouped by geopolitical units, ordered in relation to a socioeconomic indicator, it is not the case that all individuals in a group that have higher average socioeconomic status are better off than all those in a group with lower average socioeconomic status. In test studies conducted with the SII and RII using aggregate data by geopolitical units, these indicators did not appear very stable. The basic requirements for regression and linearity are, as always, conditions for application of these indices based on regression models.

Table 5. Data necessary for calculating the index of dissimilarity. Countries of the Andean area, 1997.

<table>
<thead>
<tr>
<th>Country</th>
<th>GNP</th>
<th>Physicians per 10,000 population</th>
<th>Population</th>
<th>No. Physicians (actual)</th>
<th>No. Physicians (in case of equality)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>8,130</td>
<td>24.2</td>
<td>22,777</td>
<td>55,120</td>
<td>29,579</td>
<td>25,541</td>
</tr>
<tr>
<td>Colombia</td>
<td>6,720</td>
<td>9.3</td>
<td>37,068</td>
<td>34,473</td>
<td>48,138</td>
<td>13,664</td>
</tr>
<tr>
<td>Ecuador</td>
<td>4,730</td>
<td>13.2</td>
<td>11,937</td>
<td>15,757</td>
<td>15,502</td>
<td>255</td>
</tr>
<tr>
<td>Peru</td>
<td>4,410</td>
<td>10.3</td>
<td>24,367</td>
<td>25,098</td>
<td>31,544</td>
<td>6,586</td>
</tr>
<tr>
<td>Bolivia</td>
<td>2,860</td>
<td>5.8</td>
<td>7,774</td>
<td>4,509</td>
<td>10,096</td>
<td>5,587</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>13.0</td>
<td>103,923</td>
<td>134,957</td>
<td>134,957</td>
<td>51,593</td>
</tr>
</tbody>
</table>

Slope index of inequality and relative index of inequality

Examples of questions that can be answered:

• What is the difference between the IMR of the country of the Andean area in the best socioeconomic position and the country in the worst situation?

Data needed:
Table 6.

How to calculate the indices:
1. Obtain the values of the cumulative relative position of the population ordered by the socioeconomic variable (table 6).
2. Make a graph of the two variables to confirm the linearity of the relationship between the health variable and the cumulative relative position of the population ordered by the socioeconomic variable (figure 2).
3. If linearity is confirmed, estimate the slope b through a weighted least squares regression. The following estimates were obtained using the STATA program, version 6.0, the results of which are reproduced below.

\[
\text{y} = a + b \times \text{position of the population, ordered in relation to GNP (GNP) adjusted for purchasing power parity. Countries of the Andean area, 1997.}
\]

\[
y = 53.38 + (-40.46 \times 0.89) = 53.38 - 36.00 = 17.37
\]

The value of b (−40.46) corresponds to the SII.

4. Estimate the value of the variable (y) for the geographical unit with the best situation, using for the variable (x) the value of the right of the group:

\[
y = a + bx = 53.38 + (-40.46 \times 0.89) = 53.38 - 36.00 = 17.37
\]

5. Calculate the RII using the formula:

\[
1 + \left( \frac{b}{y} \right) = 1 + \frac{(40.46/ 17.97)}{1} = 1 + 2.33 = 3.33
\]

Interpretation

• The absolute difference between the IMR of Venezuela and the IMR of Bolivia is 40.46 deaths per 1,000 live births.
• In relative terms, in Bolivia children under 1 die 3.33 times more frequently than in Venezuela.

Table 6. Data necessary for calculating the slope index of inequality and the relative index of inequality. Countries of the Andean area, 1997.

<table>
<thead>
<tr>
<th>Country</th>
<th>GNP</th>
<th>IMR</th>
<th>LB</th>
<th>RF</th>
<th>CF (m1)</th>
<th>CF – RF (m2)</th>
<th>Ridit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuela</td>
<td>8,130</td>
<td>22</td>
<td>568</td>
<td>0.22</td>
<td>1</td>
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Source: Special Program for Health Analysis (SHA), PAHO.

References (Part II)

The references respect the order of the original article.

Source: