



MINI SYMPOSIUM: BURDEN OF PNEUMONIA

The burden of pneumonia in Latin America

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KEYWORDS

pneumonia;
acute respiratory
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deaths

Summary Under-five mortality varies widely between countries, ranging from four to over 300 deaths/1000 live births. The World Summit for Children established the aim of a two-thirds reduction in worldwide child mortality by 2015. Progress toward this goal during 1990–2000 was variable between world regions. In 2000, 70% of the 1.89 million deaths of children under the age of 5 years due to acute respiratory infections occurred in developing countries. Among Latin American countries, Chile and Uruguay had the lowest percentage of deaths (5–10%), while Bolivia, Peru and Guyana had the highest (15–20%). Mortality rates due to lower respiratory infections have declined in most countries, increased in some and remained unacceptably high in others. To reach the 2015 goal of reducing mortality in the under-fives, effective interventions, such as breastfeeding and complementary feeding, *Haemophilus influenzae* type B vaccine, zinc supplementation and the use of antibiotics to treat pneumonia need to be implemented in all Latin American countries.

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INTRODUCTION

The proportion of children dying in the first year of life and before their fifth year is still high and is directly related to the level of development in the region of the world in which they live. The World Summit for Children established the aim of reducing worldwide child mortality to below 70 deaths/1000 live births or to one-third of the death rate in those countries with these mortality rates. This objective should have been reached 10 years after 1990.¹ It was

achieved only in five out of 55 countries. In 2002, as part of the health goal for the millennium development, a reduction in child mortality by two-thirds was proposed by 2015, taking 1990 as the year base.²

The progress in achieving this goal has been assessed by tracking national under-five mortality rates—i.e. the number of under-five deaths per 1000 live births—and by coverage of children immunised against measles in different regions of the world. Latin America and the Caribbean region present mortality rates that are some way between the developed and the developing countries, particularly for acute lower respiratory infections.

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THE NUMBERS

Acute respiratory infections (ARIs) are the most common infectious cause of death in children under 5 years of age and they are mostly due to pneumonia, followed by bronchiolitis.³ ARIs have been the leading causes of death in these children for more than a decade. In the 1980s, it was estimated that ARIs were responsible for 4 million child deaths each year (2.6 million deaths in infants and 1.4 million deaths in children aged 1–4 years),⁴ a figure that might have been overestimated.⁵

A new attempt to estimate the number of children aged less than 5 years who die from ARIs each year—as a proportion of those alive—was published in 2002. The analysis was carried out using studies from the late 1970s through the early 1990s to detect the log-linear association between the proportion of childhood deaths due to ARI and all-cause mortality, correcting for the bias of verbal autopsy. It suggested that 1.89 million (95% confidence limits = 1.58–2.19 million) deaths in children under 5 years old were due to ARIs in 2000.⁶

It has been estimated that 436 000 children die each year in the Americas and 60 000 deaths are caused by respiratory infections, corresponding to 3.2% of deaths from ARIs occurring throughout the world. Overall, in the Americas 14% of the children's deaths are due to ARIs in comparison to 11% in Europe and 22% in Africa.⁶ Among Latin American countries, Chile and Uruguay had the lowest percentage of deaths attributed to lower ARIs (5–10%), while Bolivia, Peru and Guyana had the highest levels (15–20%).^{6,7}

Developing countries are still inefficient at tracking and recording vital events in the population. Poor quality data due to the omission of births and deaths and the misreporting of birth date and age at death are potential areas of information bias that may distort the estimates. In addition, these are important issues relating to the collection and analysis of data regarding the definition of ARIs, which can compromise the validity or complicate the interpretation of the estimates.⁸ Recently, the World Health Organisation (WHO) published estimates of life expectancy and the probability of dying by categories of age and sex, correcting for the data missing in some countries. Fig. 1 shows the probability of boys and girls dying before the age of 5 years, together with the associated interval of uncertainty, in 2002.⁹ In most Latin American countries the probability was below 40/1000 live births and the uncertainty bounds were small. However, the under-five mortality rate for Guyana remained very wide, even after correction. Bolivia presented the highest rate with a narrow interval.

The under-five mortality rate is the most accurate indicator of the cumulative exposure from the neonatal period up to the fifth year of life. Some of the most important causes of infant mortality remain affecting the early years of life of children from Latin American countries.¹⁰ Consequently, infant and under-five mortality rates

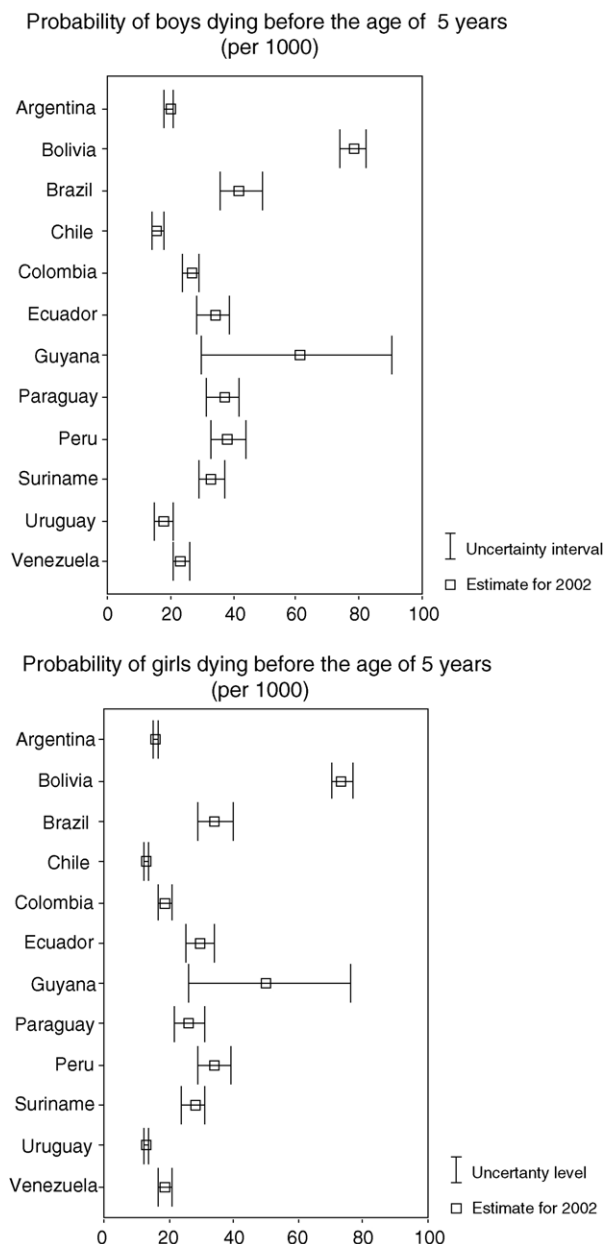


Figure 1 Probability of boys and girls under 5 years old dying in Latin America countries in 2002.

correlate closely with each other. Fig. 2 shows that Bolivia and Guyana presented the highest rates of infant and under-five mortality rates.

The overall picture suggests that, slowly, the rate in some Latin American countries is getting closer to the under-five mortality rate of 10/1000 live births observed in developed countries.

THE DISEASES

ARIs have been reported as being among the leading causes of death in children aged under 5 years. These may include pneumonia, bronchiolitis, pertussis and other respiratory

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