

**EDITORIAL / VAN DIE REDAKSIE**

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**Death from pneumonia in young children — time for action**

Acute respiratory infections (ARIs) are a leading cause of death in South African children.<sup>1</sup> Most of these deaths are from pneumonia and are potentially preventable, but the necessary steps to address the problem have not been taken. In this South Africa lags behind much of the industrialised world and several African countries.

In a recent study, based on national mortality data provided by the Central Statistical Services, pneumonia ranked second only to gastro-enteritis as a killer of South African children younger than 4 years of age.<sup>1</sup> Risk factors for death from pneumonia are malnutrition, crowding, low birth weight and indoor pollution from domestic fuel combustion and tobacco smoke.<sup>2</sup> The lack of a good primary health care system, inaccessibility of hospital facilities to many rural communities, poor immunisation coverage, and lack of maternal health education also contribute. In South Africa, where race is a determinant of socio-economic status, black children are at highest risk and have a death rate from pneumonia 270 times greater than that recorded for similarly aged children in Western Europe.<sup>1</sup> Even for children from the economically advantaged white group the risk of dying from pneumonia was found to be 7 times greater than that of their Western European counterparts.<sup>1</sup>

While one might quibble about the precision of these data,<sup>1</sup> they are the best available. Even if they are in error by as much as 100%, which is very unlikely, these figures would still be a devastating indictment of our health system and of our neglect of children.

ARIs are the single most important cause of childhood morbidity in South Africa and are a major drain on ambulatory and inpatient health resources. ARIs account for approximately 40% of childhood consultations in both the private and public health sectors.<sup>3</sup> In addition, it is estimated that about 13 000 South African children require hospitalisation for pneumonia each year.<sup>1</sup> In up to half of these symptoms may recur and radiographic abnormalities may persist.<sup>4</sup> Many will have permanently impaired lung function and be at risk for chronic obstructive lung disease in adulthood.<sup>5</sup> Effective treatment of childhood pneumonia may thus also decrease debilitating lung disease among adults.<sup>6</sup>

Our predicament is not unique. On a global scale ARI represents a public health problem of greater mag-

nitude than either adult heart disease or cancer.<sup>7</sup> The World Health Organisation estimates that between 25% and 33% of all childhood deaths are attributable to ARIs — 4 million preventable childhood deaths from pneumonia every year. What distinguishes the ARI problem in South Africa from that of our neighbours is our response to it: Zimbabwe (1987), Botswana (1989), Lesotho (1990), and Namibia (1990) have joined 38 other countries in the developing world in launching national programmes to implement WHO guidelines for the control of ARI, while we have not.

The WHO guidelines for reducing the morbidity and mortality from ARI<sup>8-11</sup> have three components: preventive measures which include immunisation, health education, and case management. The first step in case management is the assessment of severity. Simple clinical criteria are used. Children with a respiratory rate of less than 40 breaths per minute (50 if younger than 1 year) are categorised as mild ARI. A respiratory rate of more than 40 per minute indicates moderate ARI. Children with severe ARI have tachypnoea, lower chest wall retractions and are unable to take feeds. The guidelines recognise that in pneumonia the critical determinants of outcome are antibiotic choice and the availability of oxygen. Children with mild ARI require only symptomatic treatment, those with moderate ARI also require antibiotics, and children with severe ARI require hospital admission for parenteral antibiotics and oxygen therapy.<sup>9-11</sup>

The choice of antibiotic is straightforward. The only organisms of clinical importance in community-acquired pneumonias in children are *Streptococcus pneumoniae*, *Haemophilus influenzae* and, in children who had previously received antibiotics, *Staphylococcus aureus*.<sup>12</sup> These bacteria can be treated by cheap, widely available antibiotics, such as amoxicillin and co-trimoxazole.

Oxygen therapy is more difficult. Hypoxia is the ultimate cause of death in pneumonia.<sup>13</sup> But because of cost and problems associated with the supply of oxygen cylinders, routine oxygen therapy for children with pneumonia remains a hypothetical intervention for children in this country who live at a distance from a main centre. Oxygen concentrators are a cost-effective alternative to cylinders, capable of reducing oxygen costs by 25 - 75%.<sup>14</sup> They are now available in South Africa and



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every hospital which now relies on oxygen cylinders should have at least two concentrators for use in children.

It is also important that the available oxygen be used efficiently. Conventional delivery systems such as face masks or head boxes often are not well tolerated and are wasteful, requiring flow rates of 4 - 10 l/min. Oxygen tents are not only wasteful but extremely unreliable and should no longer be used for children.<sup>15</sup> Most children with pneumonia can be adequately oxygenated with a flow rate of only 0,5 - 1,0 l/min if delivered by a 6-8FG catheter in the nose. Effective oxygen concentrations of 33 - 50% are achievable by this route<sup>13</sup> and humidification is not necessary. Specific guidelines for the use of oxygen concentrators and nasal oxygen therapy are currently under development by WHO and are expected to be released later this year.

Although they are simple, the WHO guidelines for the control of ARI are not a compromise. They are a distillation of the best current clinical knowledge and practice and are suitable for use in all children and by all practitioners, whether they be community-based health workers,<sup>16</sup> family practitioners or specialists. They should be applied to all South African children as a matter of urgency. Elsewhere, they have been strikingly effective at reducing mortality from ARI. A meta-analysis of their implementation in developing countries found a 35% reduction in pneumonia mortality in infants below 1 year of age, and a 45% reduction in children between 1 and 4 years of age.<sup>17</sup> The consequent reduction in overall childhood mortality rate was 20 - 35%.<sup>17</sup> This effect compares favourably with the 20% reduction in childhood mortality by measles immunisation<sup>18</sup> and an 11 - 14% reduction in childhood mortality by oral rehydration for childhood diarrhoea.<sup>19</sup> We estimate on the basis of these results that a national ARI programme could save the lives of 1 800 or more South African children each year.

The introduction of a case management protocol for ARI in South Africa holds tremendous potential advantages and cost savings. It will improve the health of children, rationalise the use of antimicrobials, preserve antibiotic efficacy, lead to cost-effective use of oxygen and reduce expenditure on ineffective therapies. We call on the Department of Health to appoint a task force charged with the responsibility for implementing a coherent ARI programme in South Africa.

The tools for reducing the appalling death rate and morbidity from pneumonia in our country's children are available. They need to be used.

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## Perspectives on AIDS control in Zambia

The first cases of AIDS in Zambia probably occurred in the early 1980s.<sup>1-3</sup> Initially an urban problem, AIDS has spread to rural areas of Zambia<sup>4</sup> as in other African countries.<sup>5</sup> Given its impact on the incidence and severity of endemic diseases such as tuberculosis,<sup>6,7</sup> malaria,<sup>8</sup> and Kaposi's sarcoma,<sup>1,9,10</sup> HIV infection has become a leading public health problem. Reduced morbidity and mortality rates before the AIDS era are likely to be negated by secondary epidemics of communicable diseases like tuberculosis.<sup>6,7</sup> HIV infection in Zambia is mainly spread heterosexually and has epidemiological similarities to and may be facilitated by conventional sexually transmitted diseases (STDs).<sup>11-13</sup> If STD trends are used as proxy indicators of trends in HIV infection, the country-wide rise in the

incidence of STDs in the mid-1980s<sup>14</sup> implies that the number of cases of AIDS may continue to rise for some time even though subsequent transmission of HIV may have declined since 1987.<sup>15</sup>

The launching of the National AIDS Prevention and Control Programme (NAPCP) in 1986, the immediate task of which was to publicise the AIDS epidemic, generated widespread public awareness.<sup>16</sup> Subsequent diversification of its activities has created a framework for assertive AIDS control. The Zambian NAPCP has performed its initial tasks well. However, even though increasing public awareness, surveillance and clinical support are very important the ultimate challenge is to deal effectively with the root causes of sexual behaviour which increase the risk of transmitting or acquiring HIV.