countries currently recommended that children under 2 years of age should have an IOL with a 20% undercorrection. This means that if biometry is available, a 23–24 D IOL is used. In children under two there is no clear consensus regarding appropriate IOL power. Correction of aphakia in an infant will probably require a 28-30 D IOL. This is because the infant has a smaller eye, a more hypermetropic refractive state, and a less myopic postoperative refraction. However, insertion of an IOL into a child can be a difficult procedure, and, if there are serious complications, the vision may be permanently lost. It is possible that good pseudophakia may be better than good aphakia. However, it is absolutely certain that bad pseudophakia is much worse than good aphakia.

**Conclusion**

IOLs are increasingly regarded as the best treatment for aphakia in all age groups. However, insertion of an IOL into a child can be a difficult procedure, and, if there are serious complications, the vision may be permanently lost. It is possible that good pseudophakia may be better than good aphakia. However, it is absolutely certain that bad pseudophakia is much worse than good aphakia.

**The Increasing Problem of Retinopathy of Prematurity**

Andrea Zin MD MSc
Paediatric Ophthalmologist
Department of Neonatology
Fernandes Figueira Institute
Oswaldo Cruz Foundation
Avenue Rui Barbosa 716
Famengo CEP 22250-020
Rio de Janeiro, Brazil

**Background**

Retinopathy of prematurity (ROP) is an important cause of avoidable childhood blindness in industrialised countries. It is also emerging as a problem in economically developing parts of the world because of the ever increasing survival of low, and very low birth weight infants, especially in urban settings.

Many studies have investigated risk factors for ROP, and the major parameters are low birth weight and pre-term birth. In addition, the infant retina has been shown to be very susceptible to fluctuating oxygen levels. The development of ROP seems to be determined by the immaturity of the infantile retina and how early the damage to the tissues starts. Other factors related are hypoxia, sepsis, acidosis, vitamin E deficiency and intraventricular haemorrhage.

Retinopathy of prematurity has been reported to be responsible for 4.1–38% of severe visual impairment/blindness (SVI/BL) in Latin America. Countries with intermediate infant mortality rates (10-60 per 1000 live births) seem to have the highest proportion of childhood blindness due to ROP. These are middle-income countries that are introducing or expanding intensive neonatal care services in private and government sectors. Surviving neonates are generally not screened or treated for ROP, thus increasing the prevalence of blindness and severe visual impairment. Industrialised countries have infant mortality rates of less than 10 per 1000 and good neonatal intensive outcomes. In these settings ROP accounts for 6–18% of childhood blindness.

There is little data on the proportion of premature, low birth weight babies who have the different stages of ROP, as well as little data on the proportion of childhood blindness due to ROP in Brazil. As ROP seems to be associated with infant survival, these rates may reflect overall mortality rates for each region (Table 1). There is neither a national programme for ROP screening nor available official childhood blindness registration data. As an isolated initiative, some public and private institutions perform screening for ROP using different guidelines.

The data presented in this paper come from examining babies in one neonatal unit in Rio de Janeiro, Brazil over a 3-year period (1998–2000). The data have been extrapolated to estimate the number of babies at risk of ROP in Rio, and in Brazil as a whole. The implications for screening programmes in Brazil are discussed.

**Table 1: Mortality Rate/Age < 1 Year/Region (Brazil)**

<table>
<thead>
<tr>
<th>Region</th>
<th>0-6 days</th>
<th>7-27 days</th>
<th>≥ 28 days</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>49.64</td>
<td>32.37</td>
<td>37.99</td>
<td>100</td>
</tr>
<tr>
<td>Northeast</td>
<td>39.71</td>
<td>16.87</td>
<td>49.42</td>
<td>100</td>
</tr>
<tr>
<td>Southeast</td>
<td>52.23</td>
<td>14.04</td>
<td>33.73</td>
<td>100</td>
</tr>
<tr>
<td>South</td>
<td>46.88</td>
<td>12.58</td>
<td>40.54</td>
<td>100</td>
</tr>
<tr>
<td>Centre-west</td>
<td>51.06</td>
<td>14.09</td>
<td>34.85</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>47.11</td>
<td>12.66</td>
<td>40.23</td>
<td>100</td>
</tr>
</tbody>
</table>
In order to determine the present situation in Rio de Janeiro, data on all live births were collected for the year 2000 with an evident need to start a screening programme. To assure better communication among the involved group as well as treat threshold disease. However, hindrances in implementing a programme in an integrated fashion, with adequate planning, are predictable in such a large country as Brazil. According to Zikazak et al., a co-ordinated regional strategy can improve the implementation of national guidelines for screeningROP, which in the UK resulted in a higher uptake for babies most at risk.1 Screening guidelines pertaining to industrialised countries may prove inappropriate in middle-income economies, which may have lower standards of neonatal care and poorer neonatal outcomes. In these situations, less pre-term babies who might be at risk of ROP would not be included in a screening programme. Since 2001 a new protocol has been adopted, which was developed by the NO-ROP GROUP. The establishment of new programmes throughout Latin America provides an excellent opportunity to collect data from all the countries involved using standard screening criteria, examination methods and definitions of disease. The new screening criteria are birth weight less than 1500g and all who have had 30 or more days of oxygen, regardless of birth weight or gestational age. The first examination should be at 6 – 7 weeks after birth. Blindness and visual impairment have important socio-economic implications. Blindness occurring in infancy is a long-lasting burden, both in terms of social dependence and lost productivity. Therefore, a public health intervention that saves the sight of even a relatively small number of infants and children provides significant savings, while ensuring a better quality of life for those affected.

**Acknowledgments**

The author would like to express her gratitude to Dr Clare Gilbert and Dr Allen Foster for their advice.

**References**