

# SURVIVE and THRIVE

Transforming care for every  
small and sick newborn

Retinopathy of prematurity as a leading  
cause of preventable blindness in Latin  
America & the Caribbean

Pablo Duran  
Regional Advisor in Perinatal Health  
PAHO-WHO

# Retinopathy of prematurity worldwide

nature publishing group

Population Study

Articles

Open

Beyond Newborn Survival Paper 3

## Preterm-associated visual impairment and estimates of retinopathy of prematurity at regional and global levels for 2010

Hannah Blencowe<sup>1</sup>, Joy E. Lawn<sup>2,3</sup>, Thomas Vazquez<sup>4</sup>, Alistair Fielder<sup>5</sup> and Clare Gilbert<sup>6</sup>

### Key findings:

- 184,700 (UR: 169,600–214,500) preterm babies developed any stage of ROP
- >32,200, annually estimated to developed mild/moderate or severe visual impairment.
- Two thirds of those visually impaired from ROP were born in middle-income regions
- Approx 6.2% (4.3–8.9%) of all ROP visually impaired infants were >32-wk gestation.



Original research

A multi-country, cross-sectional observational study of retinopathy of prematurity in Latin America and the Caribbean

Lauren Arnesen,<sup>1</sup> Pablo Durán,<sup>2</sup> Juan Silva,<sup>3</sup> and Luisa Brumana<sup>4</sup>

# Retinopathy of prematurity in Latin America and the Caribbean is a major cause of preventable blindness

- ~10% of cases resulted in blindness or severe visual impairment, most likely caused by most acute disease stages & absence of advanced treatment

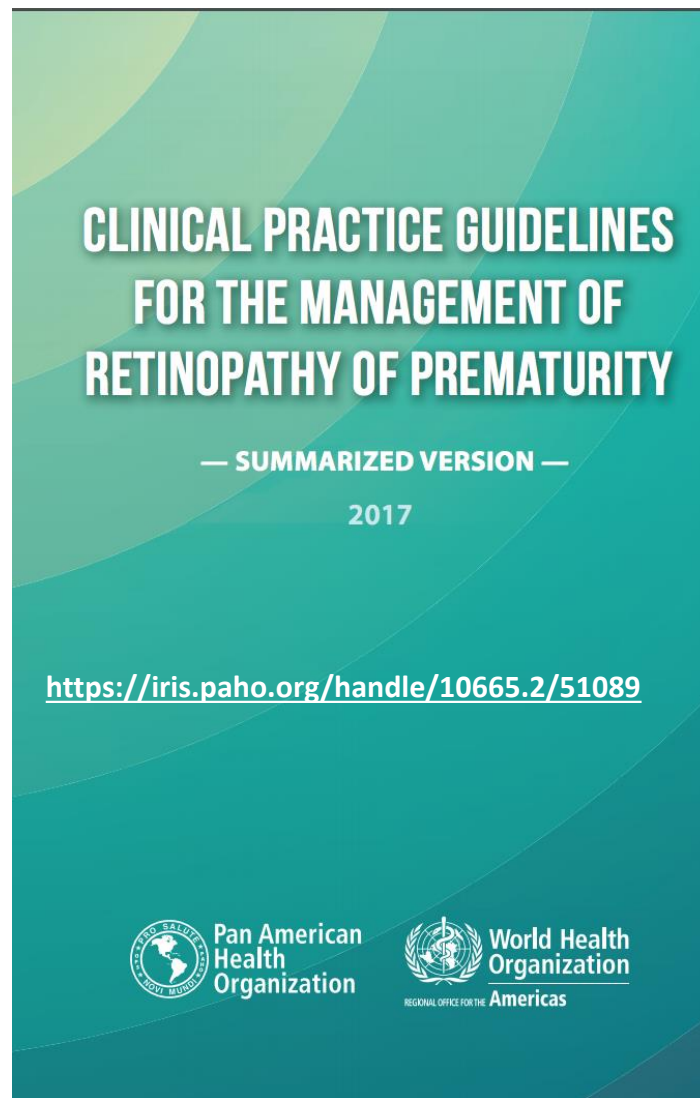
Survey of medical/public health experts	
Assessed	4 government inputs: national policies, guidelines, programs, financing
Findings	<ul style="list-style-type: none"> <li>• Only 2 countries had all 4 inputs</li> <li>• Countries w/ 3 or 4 inputs averaged 95% of eligible newborns screened</li> <li>• Countries w/ 1 or 2 inputs averaged 35%</li> </ul>

- Standard criteria required to identify all eligible newborns to avoid missing potential cases
- Health systems need to have capacity to provide follow-up care, improve technology, and develop skilled workforce with trained ophthalmologists



# What is PAHO/partners doing? 1. Improved care, clinical guidelines

- Development of a Clinical guideline
  - Diagnose (ROP) early and prevent ROP risk factors in preterm newborns in the neonatal care unit
  - Present the strategies available for the diagnosis, treatment, and follow-up of newborns with retinopathy of prematurity in LAC.
- Dissemination and national adaptation of the guidelines
- Strengthening surveillance, M&E (set of indicators)
- I-E-C strategies



**PREVENT CHILDHOOD BLINDNESS  
DUE TO RETINOPATHY OF PREMATUREITY**

PREVENT CHILDHOOD BLINDNESS DUE TO RETINOPATHY OF PREMATUREITY

Avoid the administration of 100% oxygen - alarm limits between 88% and 95%.

- Monitor saturation with continuous pulse oximetry
- Humidify and warm the oxygen
- Use point and low-flow (1 to 3-liter) flowmeters
- Use oxygen blenders

Start resuscitation at the delivery room using 21-30% FiO2 and adjusting every 90 seconds:

- 3 minutes at 70 -75%
- 5 minutes at 80-85%
- 10 minutes at 85-95%



OPHTHALMOLOGIC SCREENING BEFORE DISCHARGED FROM THE NICU

GA at birth < 27 weeks: At 30 weeks of gestation  
GA at birth => 27 weeks: at 4th week after birth

**Newborn birthweight < 2000 grams and/or ≤ 36 weeks, any weight.  
Or if they present any risk factors**

The Head of the NICU should coordinate screening, scheduling a fixed day for assessing neonates at risk

RISK FACTORS

- Ventilation
- Oxygen therapy
- Chorioamnionitis and/or Candidiasis
- Endocranial hemorrhage
- Periventricular leukomalacia
- Hydrocephalus
- Preeclampsia



**PAHO** Family, Health Promotion and Life Course Dept  
Healthy Life Course Latin American Center for Perinatology,  
Women and Reproductive Health

Source: Pan American Health Organization. Clinical Practice Guidelines for the Management of Retinopathy of Prematurity, Summarized Version 2017. Washington, D.C.: PAHO; 2019. Available in: <http://iris.paho.org/handle/10665.2/51089>

This work was possible thanks to the financial support of the Spanish Agency for International Development Cooperation AECID

# 2. Improved prevention, especially safe Oxygen use, early detection

## PREVENT CHILDHOOD BLINDNESS DUE TO RETINOPATHY OF PREMATURITY



- Avoid the administration of 100% oxygen - alarm limits between 88% and 95%.
- Monitor saturation with continuous pulse oximetry
  - Humidify and warm the oxygen
  - Use point and low-flow (1 to 3-liter) flowmeters
  - Use oxygen blenders
- Start resuscitation at the delivery room using 21-30% FiO2 and adjusting every 90 seconds:
- 3 minutes at 70 -75%
  - 5 minutes at 80-85%
  - 10 minutes at 85-95%

Follow-up to ROP screening should be carried out according to the following scheme:

	STAGE	ZONE I	ZONE II	ZONE III	
WITHOUT PLUS	INMATURE	Yellow	Green	Green	EXAM IN TWO WEEKS
	STAGE I	Yellow	Green	Green	EXAM IN ONE WEEK
	STAGE II	Yellow	Yellow	Green	
WITH PLUS	STAGE III	Red	Yellow	Yellow	TYPE 2 EXAM IN 3 OR 4 DAYS
	STAGE I	Red	Yellow	Yellow	
	STAGE II	Red	Red	Yellow	TYPE 1 TREATMENT within 48 hours

Source: From Zero to Always Program (Colombia, 2016).

Quality of the evidence: very low ⊕○○○

(Recommendation through expert consensus)

### OPHTHALMOLOGIC SCREENING BEFORE DISCHARGED FROM THE NICU

**RISK FACTORS**

- Ventilation
- Oxygen therapy
- Chorioamnionitis and/or Candidiasis
- Endocranial hemorrhage
- Periventricular leukomalacia
- Hydrocephalus
- Preeclampsia

GA at birth < 27 weeks: At 30 weeks of gestation  
 GA at birth => 27 weeks: at 4th week after birth

Newborn birthweight < 2000 grams and/or ≤ 36 weeks, any weight.  
 Or if they present any risk factors

The Head of the NICU should coordinate screening, scheduling a fixed day for assessing neonates at risk



## 3. Improved surveillance, data and use of data

- Institutional and Individual QoC and outcomes assessment tools
  - Assessment of Essential Conditions for Health Servicestral Information System
  - Perinatal Information System
- Basic Minimum set of data for the registry and monitoring of ophthalmological care
- Practical diagnostic guide & clinical Atlas of ROP (comparability)
- On-line training
- Educational guide for parents

Formulario: SIP Neonatal Sección: 6 / 11

PATOLOGÍAS		SEPSIS tratada de	
no	si	no	si
asfixia al nacer	neumotórax	no	si
membrana hialina	bron. pulm	no	si
SDR asoc. rascón	ECN confirmada	no	si
hipert pulmonar	perf. intest. focal	no	si
dacrius art. tratado	sifilis	no	si
apneas	HIV perinatal	no	si

Otras (código y nombre)

**PAHO** The American Health Organization World Health Organization

### AEC

Login

Email

Password

Log in

Forgot your password?

**Self-Assessment**

TOOLS FOR THE COVID RESPONSE

Readiness

[https://hsvce.paho.org/users/sign\\_in](https://hsvce.paho.org/users/sign_in)

**PAHO** VIRTUAL CAMPUS FOR PUBLIC HEALTH

Español | English | Português | Français

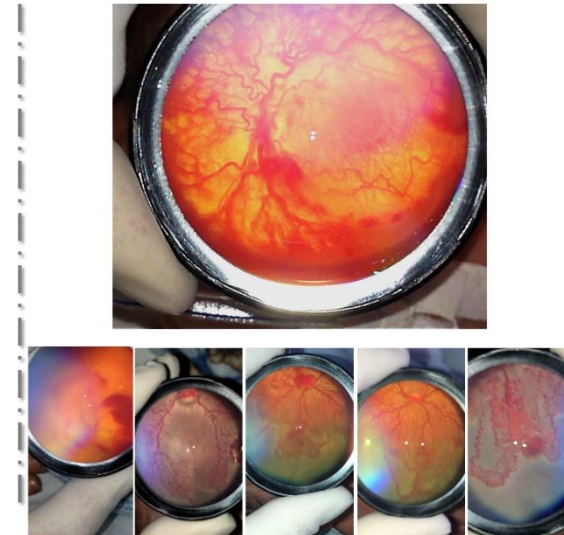
HOME PAGE ABOUT US HELP DESK

Welcome to the Virtual Campus for Public Health of PAHO/WHO. Log in | Create an account

The VCPH is a space to **create** the skills of health workers in the Americas.

- Self-learning courses
- Courses with tutoring
- Countries courses
- Call for applications
- Educational materials of courses completed

<https://www.campusvirtualesp.org/en>



# SURVIVE and THRIVE

Transforming care for every  
small and sick newborn

Thank you!