IMPROVING ACCESS TO ESSENTIAL OXYGEN THERAPY AND PULSE OXIMETRY FOR CHILDHOOD PNEUMONIA TREATMENT

Gwen Ambler[1], Jaclyn Delarosa[1], Grace Wu[2], Bonnie Keith[1], Darin Zehrung[1]

[1]PATH, [2]Boston University

BACKGROUND

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Oxygen treatment is essential for reducing mortality linked to hypoxemia, a common complication of childhood pneumonia. Child mortality from pneumonia fell by 58% from 1990 to 2013; however, much of the progress was outside high-burden areas where oxygen access is most limited.[1] Oxygen and pulse oximetry remain scarce resources for many health facilities in low- and middle-income countries (LMIC) (Table 1).

Global impact of oxygen access on childhood pneumonia

- Hypoxemia increases the risk of death from pneumonia by almost five times.[2]
- Introducing oxygen and pulse oximetry can reduce mortality from childhood pneumonia by 35–55%.[3,4]
- Annually, 122,000 child pneumonia deaths could be averted with strengthened oxygen delivery and pulse oximetry monitoring systems.[5]

Table 1. Select LMIC assessments of oxygen availability.

Study	Country	Setting	Oxygen availability
Vo et al. 2012	22 LMIC	Anesthesia capacity in 590 health facilities	No access: 35% Consistent access: 45%
Manasyan et al. 2013	7 LMIC	Emergency obstetric/ neonatal care in 136 hospitals and 228 health clinics	No access: 40% (African hospitals), 17% (Asian hospitals) No access: 91% (African clinics), 69% (Asian clinics)
Hadler et al. 2016	22 LMIC	Anesthesia capacity in 614 hospitals	Functional pulse oximetry: 51%

PATH is collaborating with diverse stakeholders to identify barriers and implement scalable solutions to improve oxygen and pulse oximetry access in LMIC.

OXYGEN AS AN ESSENTIAL MEDICINE

We reviewed 105 searchable national essential medicines lists (NEMLs). Almost a third of NEMLs (31%) did not include oxygen (Figure 1).

PATH is submitting an application to the World Health Organization (WHO) Model List of Essential Medicines (EML) for a listing for oxygen medical gas to manage hypoxemia outside of anesthetic settings.

OXYGEN AS AN ESSENTIAL MEDICINE
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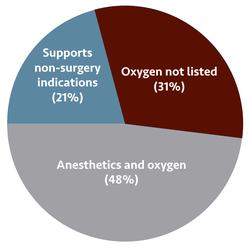
Figure 1. Listing of oxygen in 105 National Essential Medicines Lists.



The proposed revisions to the EML would create alignment with recent WHO publications on the safe use of oxygen and pulse oximetry (Table 2).

Table 2. Recently released WHO guidance on oxygen and pulse oximetry use for children.

Year	Title
2016	Standards for improving quality of maternal and newborn care in health facilities
2016	Oxygen therapy for children: a manual for health workers
2016	Paediatric emergency triage, assessment and treatment: Care of critically ill children
2015	Technical specifications for oxygen concentrators

STAKEHOLDER CONSULTATIONS ON OXYGEN AND PULSE OXIMETRY ACCESS

Through a series of stakeholder meetings with manufacturers, policymakers, and technical experts, PATH identified opportunities to increase access to oxygen and pulse oximetry in LMIC (Figure 2).

Manufacturer consultation meeting

Stakeholders: 60+ suppliers of oxygen concentrators and pulse oximeters and international partners.

Perceived barriers to oxygen and pulse oximetry availability in LMIC include low awareness of good-quality devices and insufficient maintenance capacity.

Landscape analysis of oxygen access in India

Stakeholders: 45+ program and procurement staff, health care policymakers, and local manufacturers.

Perception that oxygen needs are being met, but actual oxygen-related device use, cleaning, and maintenance does not match local and global recommendations.

Technical consensus meeting on the WHO EML

Stakeholders: 7 WHO staff from 4 departments.

Advocates can leverage an EML update to promote increased access to oxygen and pulse oximetry in LMIC.

STAKEHOLDER CONSULTATIONS ON OXYGEN AND PULSE OXIMETRY ACCESS
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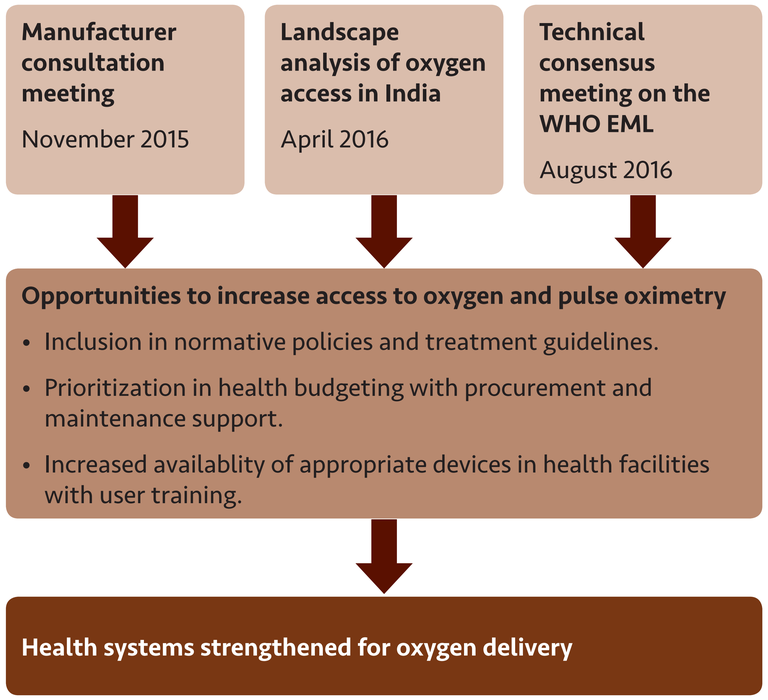
Figure 2. Stakeholder consultations identified opportunities for increasing oxygen access.



CONCLUSION

Ensuring endorsement and prioritization of oxygen and pulse oximetry in countries with high burdens of child pneumonia deaths are key to reducing child mortality. PATH is working to increase access to oxygen and pulse oximetry for children with hypoxemia by generating broad support among global and local stakeholders and increasing understanding of the oxygen access issue and solutions for scale-up.

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