Global Resource Needs in Paediatric Emergency and Critical Care:
An International Survey

Tanya Haj Hassan[1], Fiona Muttalib[2], Daniel Martinez[3], Ad Bafa Ibrahim Ouattara[4], Anita Arias[5], Haifa Mtaweh[6]

[1]*Department of Critical Care Medicine, Hospital for Sick Children; Médecins Sans Frontières*
[2]*Division of Pediatric Critical Care, Department of Pediatrics, BC Children's Hospital*
[3]*Paediatric Emergency department, Geneva University Hospitals - Paediatric Hospital; Telemedicine project, Médecins Sans Frontières*
[4]*Pédiatre au Centre Hospitalier Universitaire Souro SANOU de Bobo-Dioulasso, Burkina Faso*
[5]*Department of Critical Care Medicine, St Jude Children's Research Hospital*
[6]*Department of Critical Care Medicine, Hospital for Sick Children*

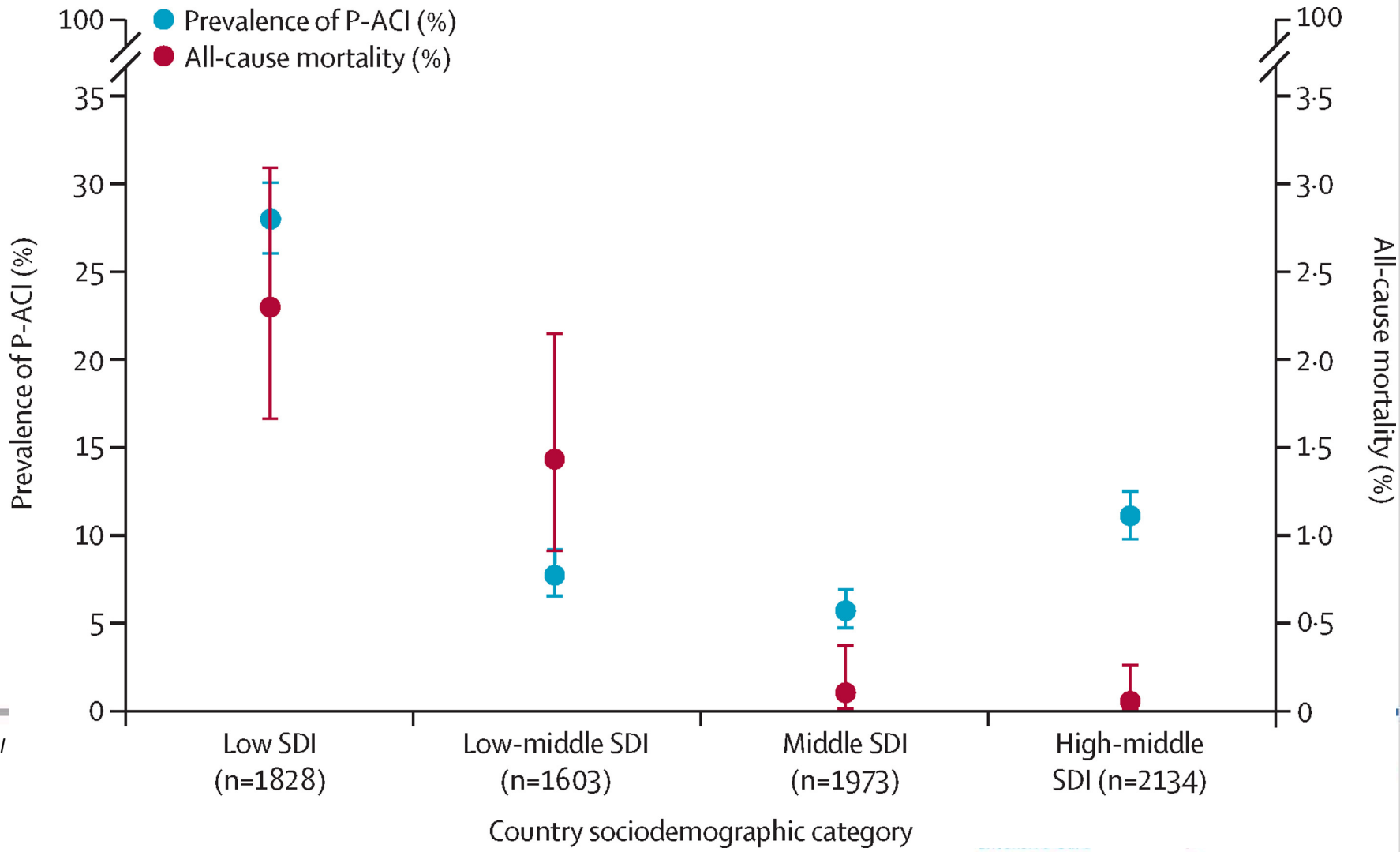
Conflicts of Interest

Nothing to disclose.

1. Higher global burden of paediatric critical illness AND higher risk of death

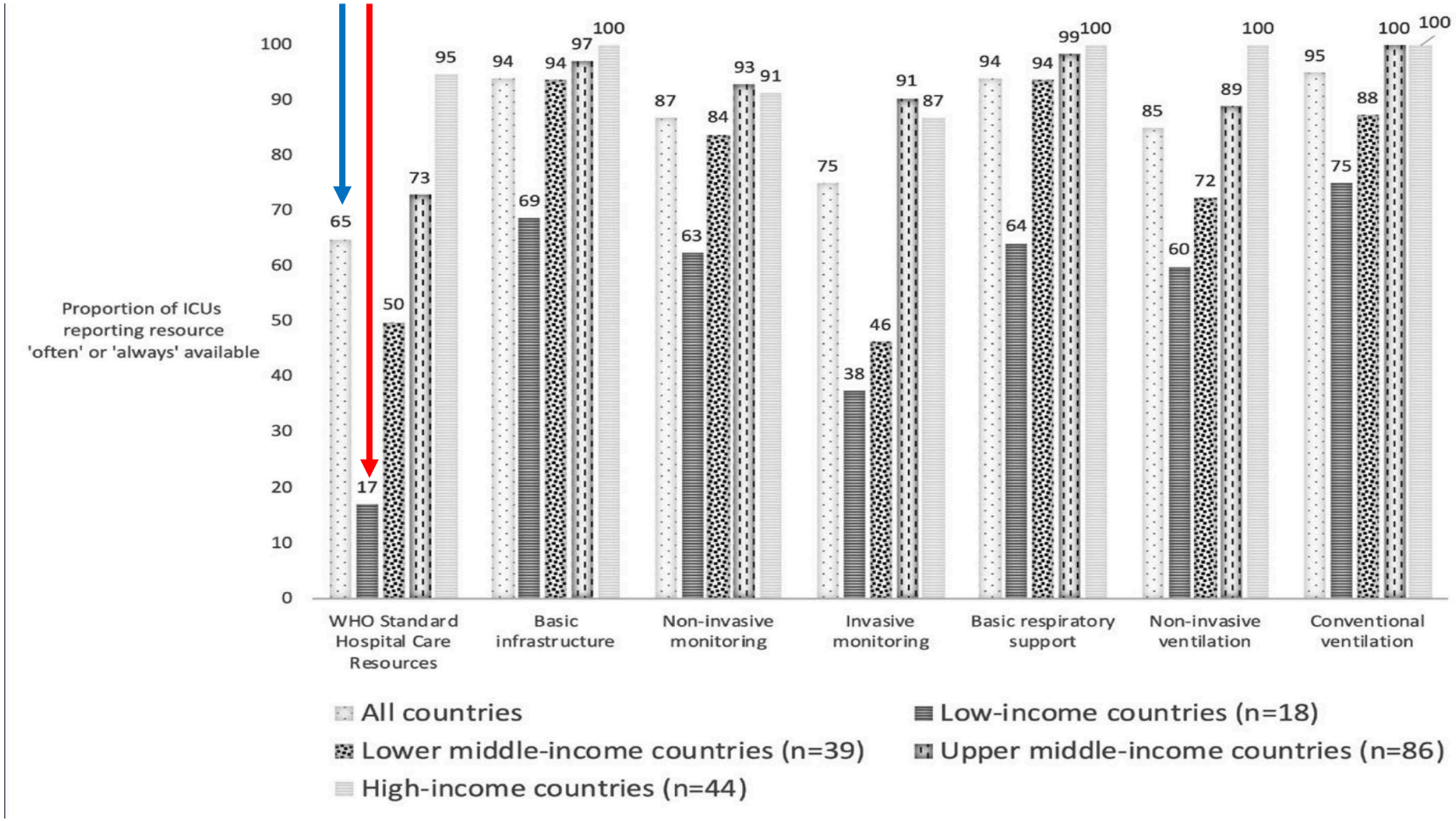
Global PARITY Study

Lancet, Feb 2025



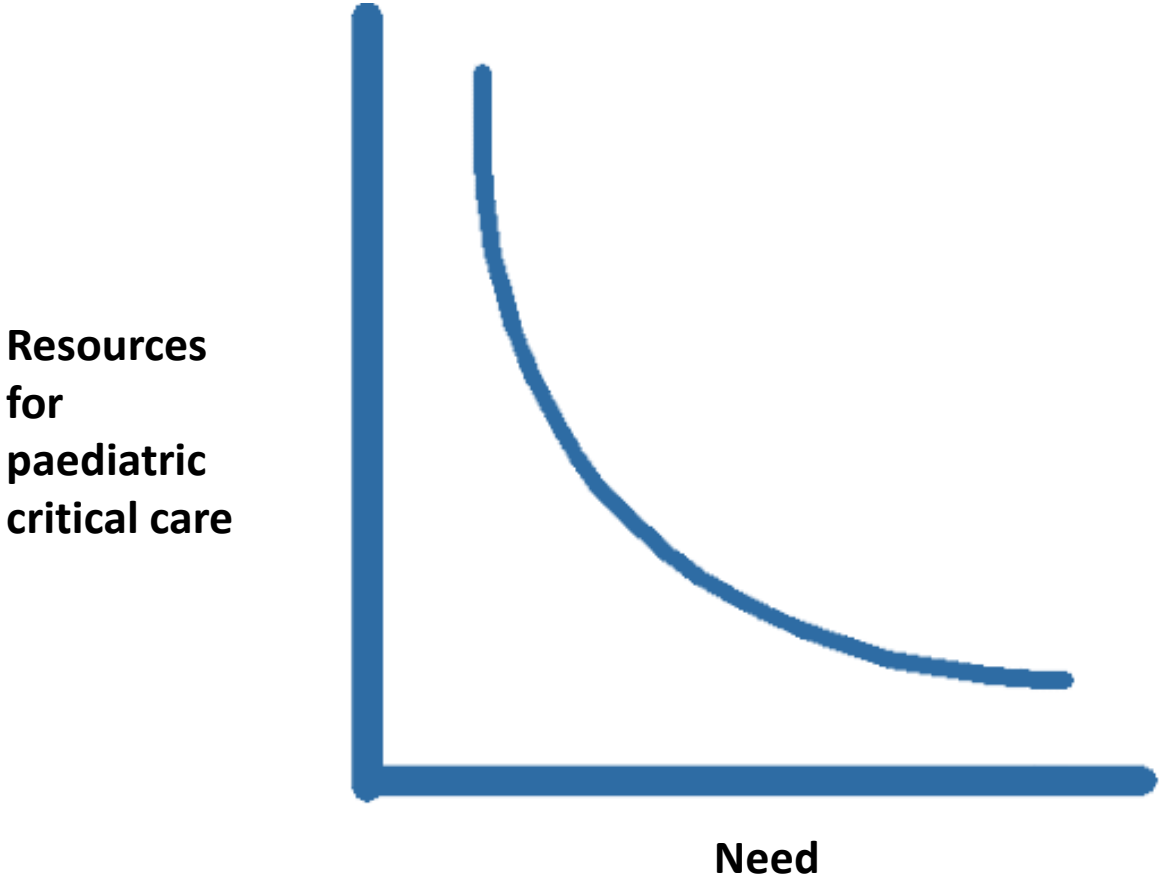
Prevalence, aetiology, and hospital outcomes of paediatric acute critical illness in resource-constrained settings (Global PARITY): a multicentre, international, point prevalence and prospective cohort study
Kortz, Teresa BAbdul-Mumin, Alhassan et al.
The Lancet Global Health, Volume 13, Issue 2, e212 - e221

2. Inequity in infrastructure and resources for emergency and critical care



Muttalib et al, CCM 2021

Clear inverse relationship between resources and needs



Questions

What are the **essential paediatric emergency and critical care resources** that critically ill children should have access to in resource limited settings (RLS) ***as determined by providers in those settings***?

How does this standard compare to existing resources in these settings?

Methods: International, modified Delphi survey

Developing the Survey

- Developed a list of hospital readiness requirements based on existing clinical guidelines and tools

Delphi Round

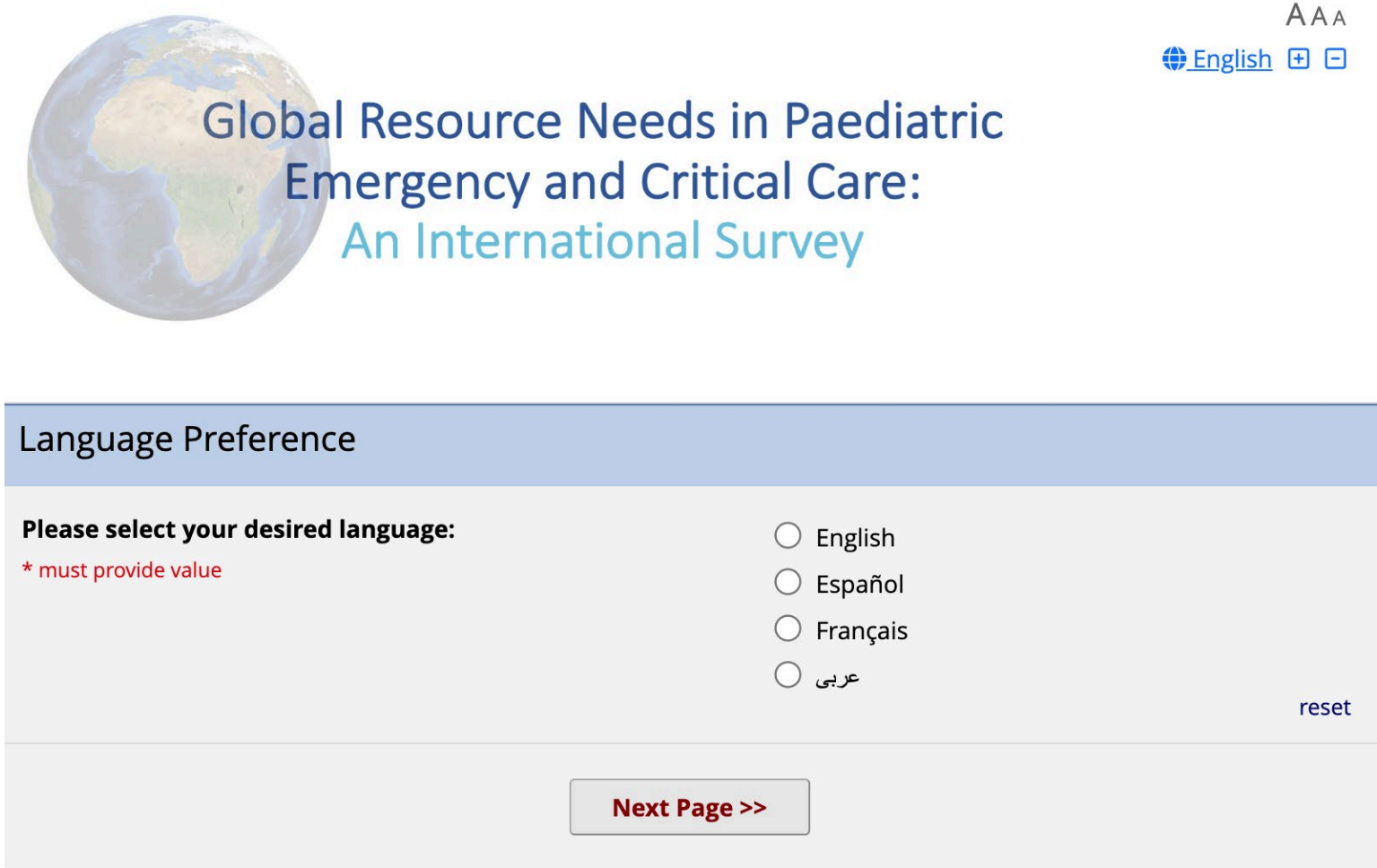
- Invited clinical experts from RLS to fortify, remove, add, edit content using a four choice Likert scale and free-text

Data analysis

- Consensus considered if >75% of respondents select agree or strongly agree

Survey Respondents

- ✓ Emergency responder, physician, or nurse
- ✓ Work in a RLS
- ✓ Care for acutely/critically ill children



Recruitment

Global Emergency and Critical Care Societies

WFPICCS
World Federation of Pediatric Intensi
Critical Care Societies

PECC-Kenya
Pediatric Emergency and Critical Care

PALISI

PACCM

LA Red
RED Pediátrica de Latinoamérica
"Compartiendo nuestras Prácticas, mejoramos Resultados"

Social Media

SickKids Critical Care Medicine
@SickKidsCCM

l Resource Needs in Paediatric
gency and Critical Care:
rnational Survey

a health-care provider caring for acutely and
y ill paediatric patients in a resource limited
(RLS)?

u are invited to participate in our study **to help determine**
ency and critical care paediatric resource needs in RLS.
ill be asked to complete:
survey about the resources available or required for
the care of acutely ill paediatric patients in your setting.
Scan the QR code or visit: https://bit.ly/3pVWfkF
- a follow-up survey will be disseminated in summer 2023.

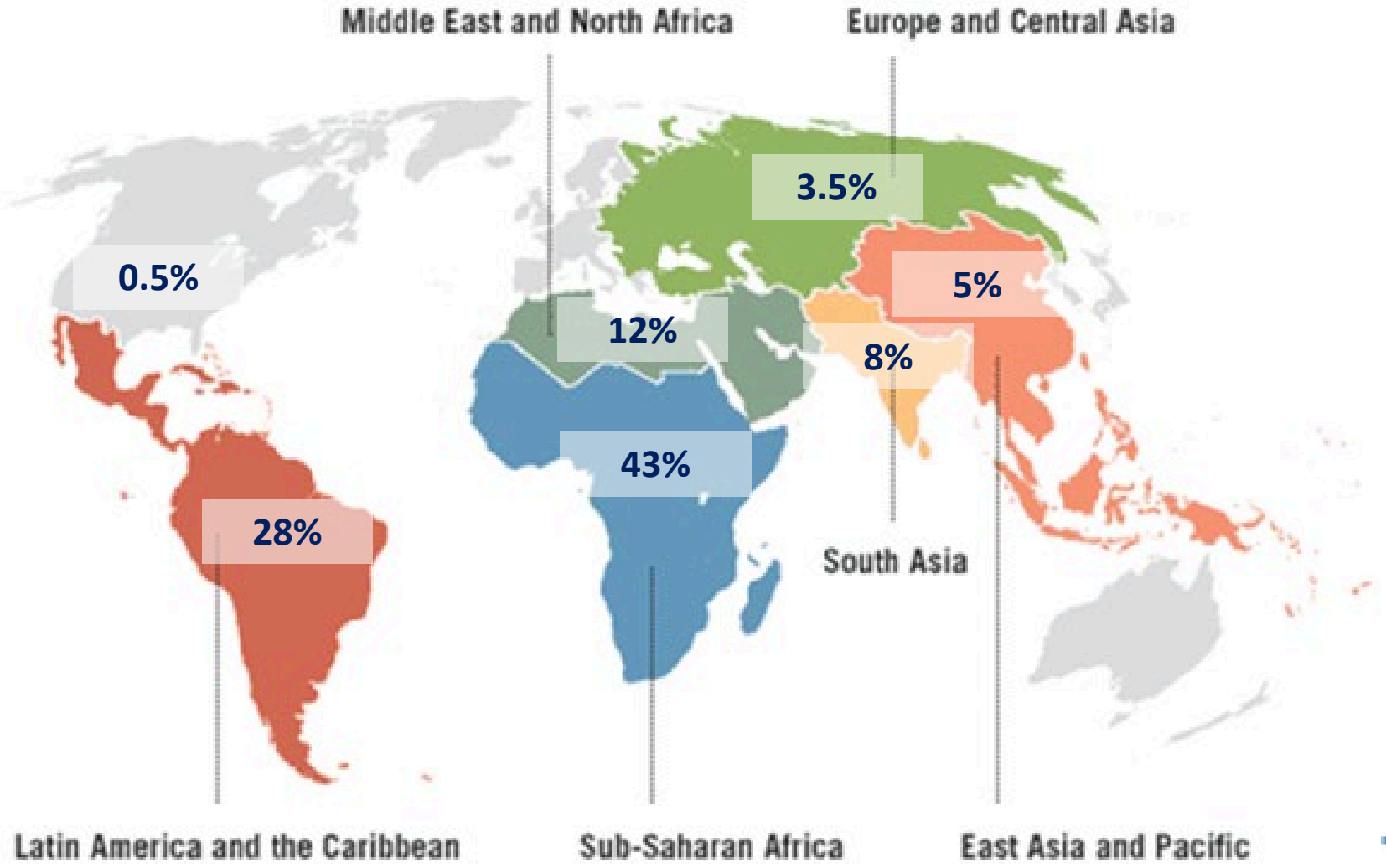
Each survey will take 20 minutes to complete.
Participants in both survey rounds will have the opportunity to be listed as a collaborator in any potential publications survey findings (optional).

Questions? Contact:
Tanya Haj-Hassan
tanya.haj-hassan@doctors.org.uk.

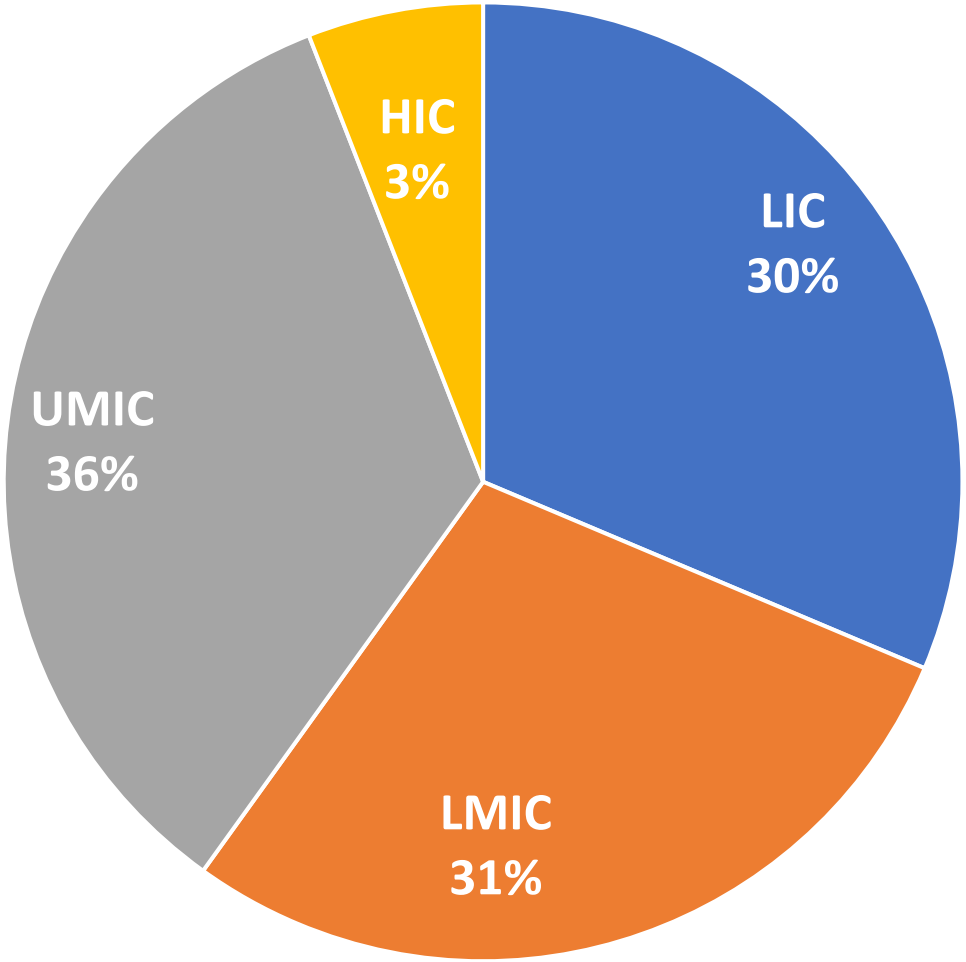
Principal Investigator:
Dr. Haifa Mtaweh

Participant Characteristics: Primary Country of Work

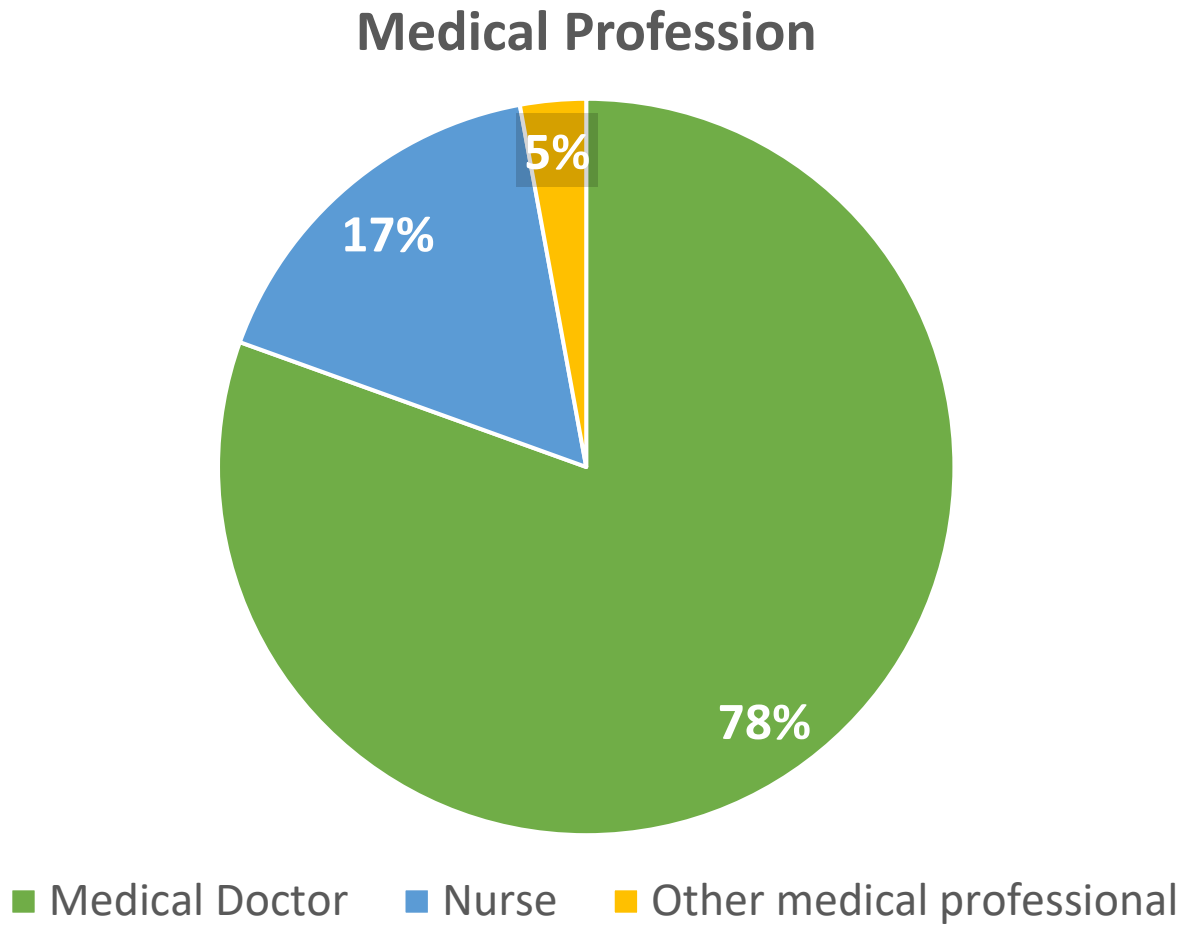
- 294 respondents consented
- 198 logged their survey responses

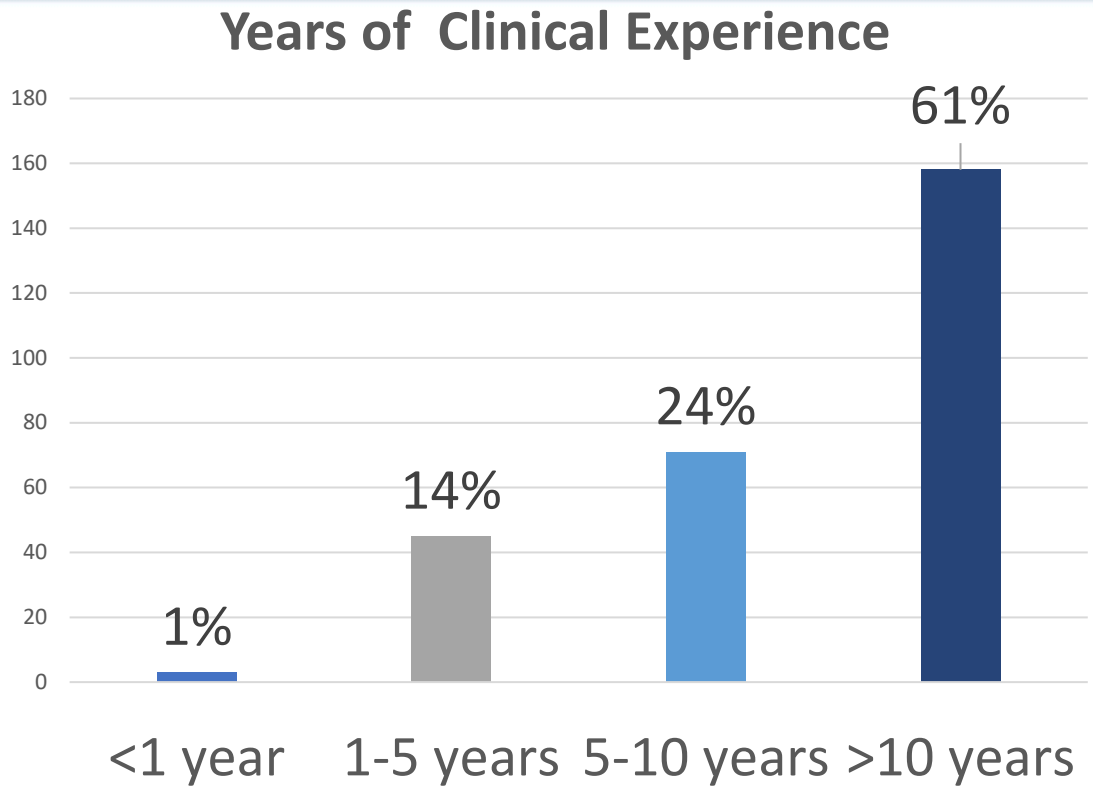


Participant Characteristics: Income of Country



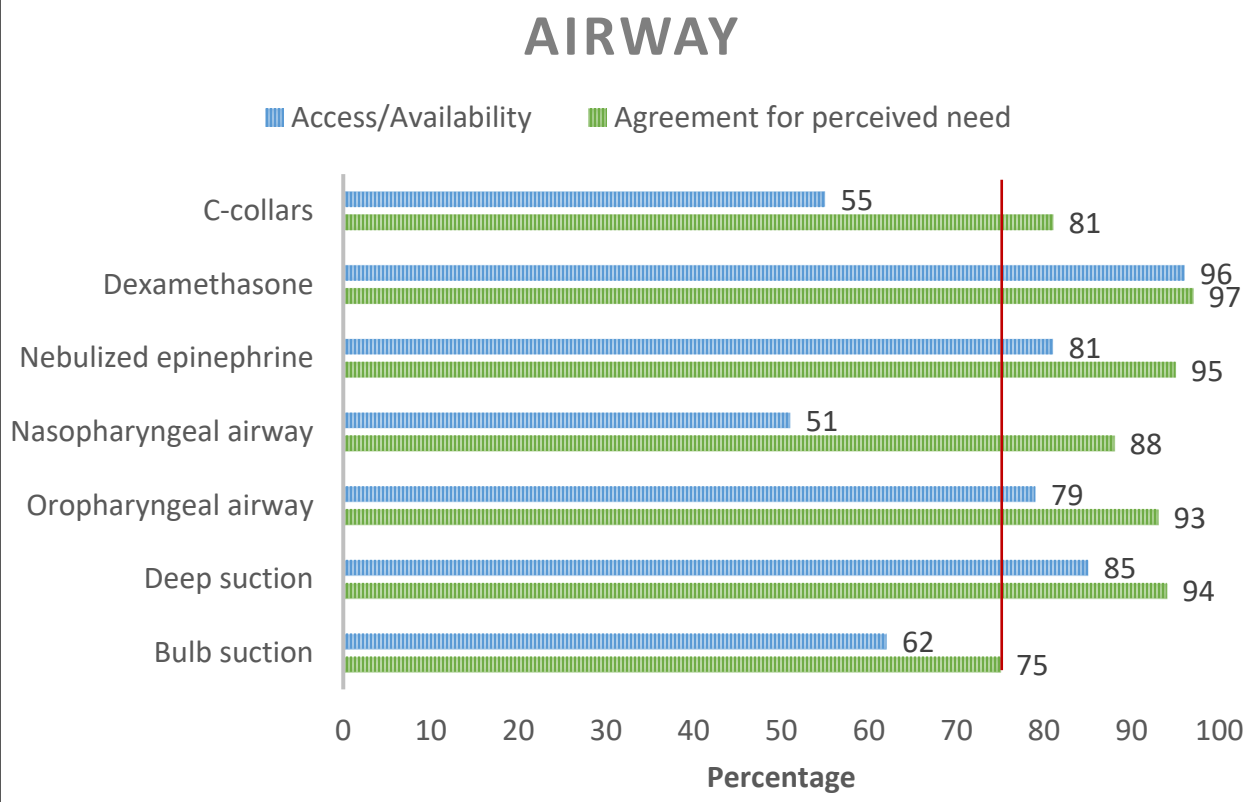
Participant Characterization: Profession and Setting

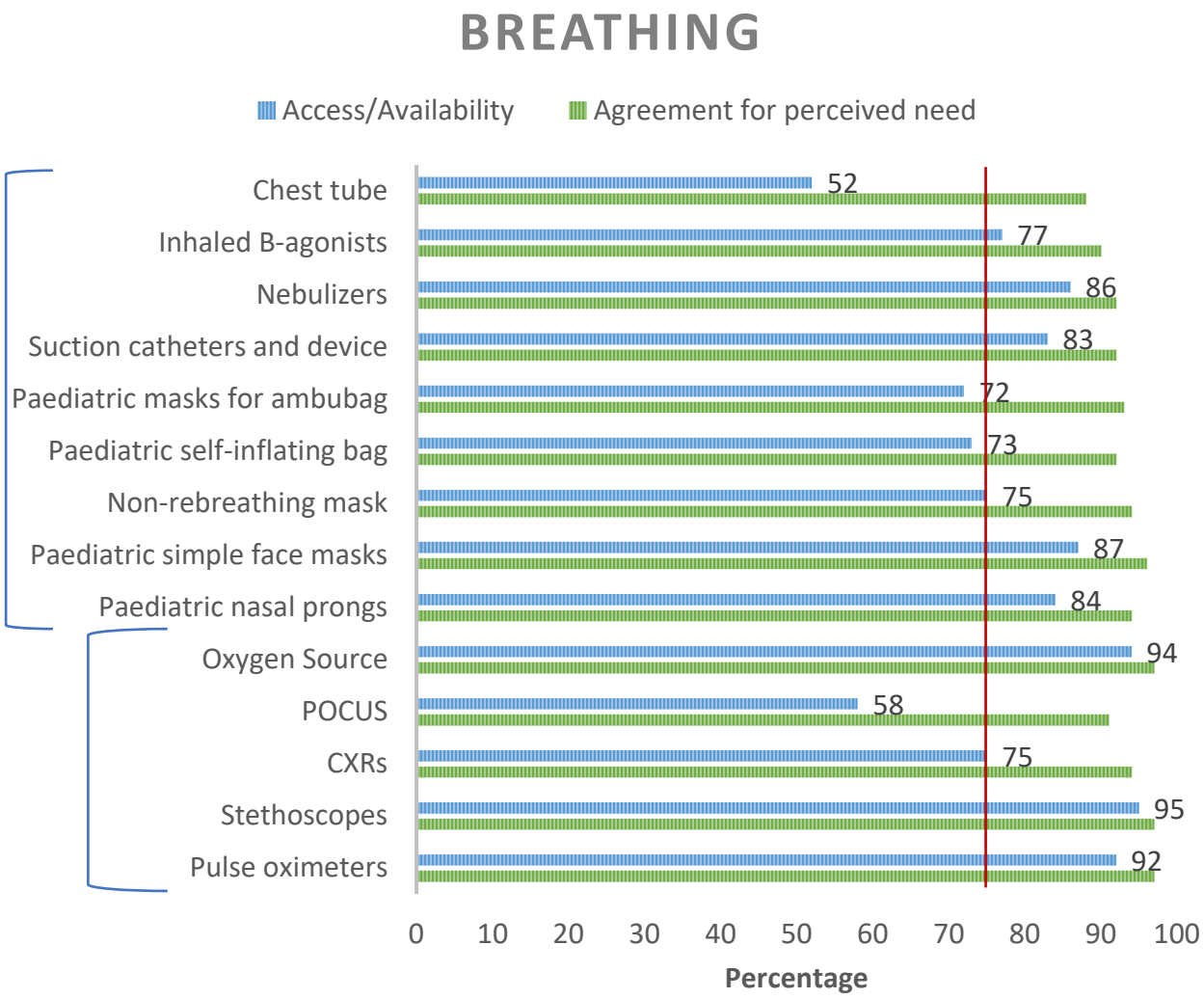




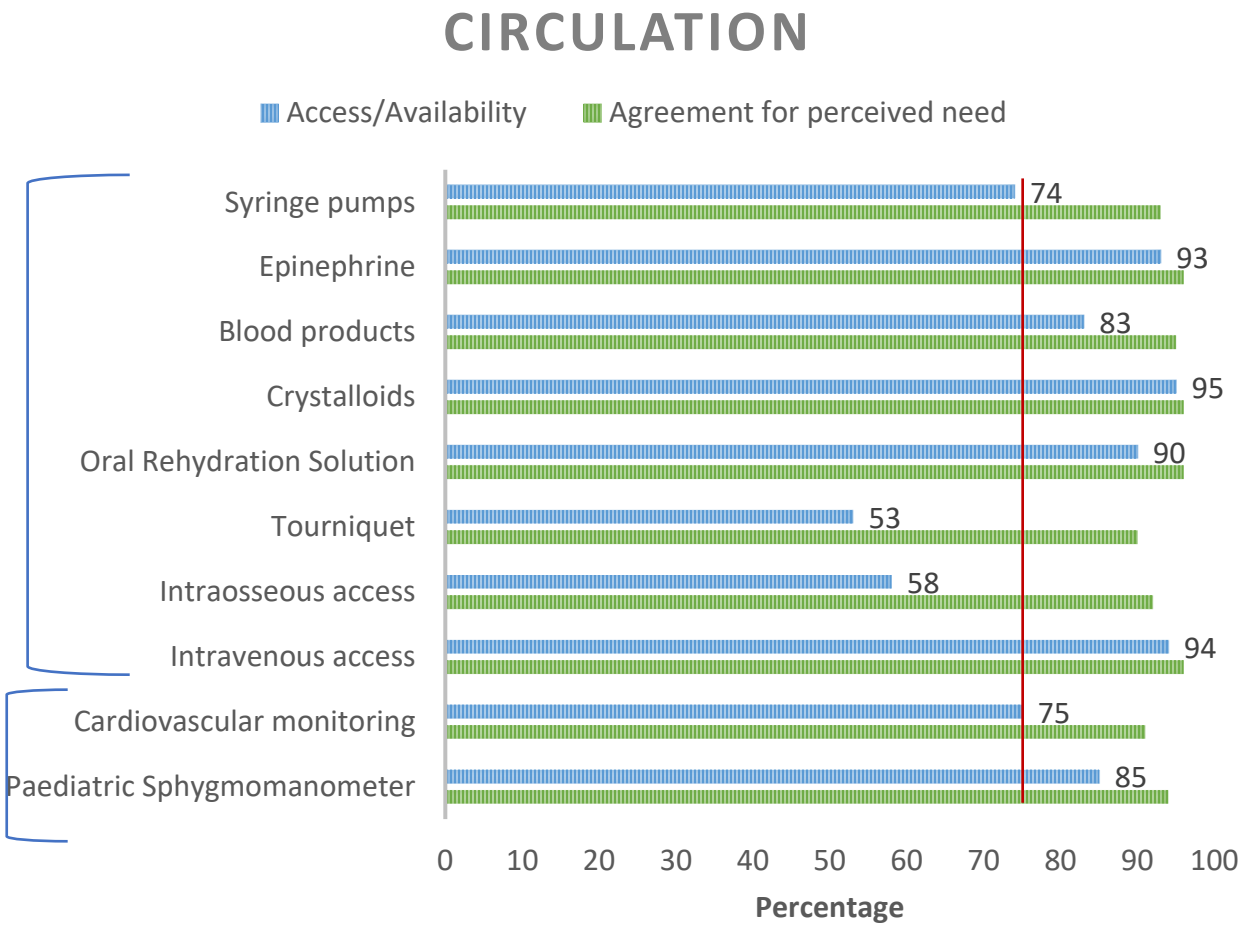
- **87%** with **dedicated ICU**
- **79%** with **dedicated PICU**

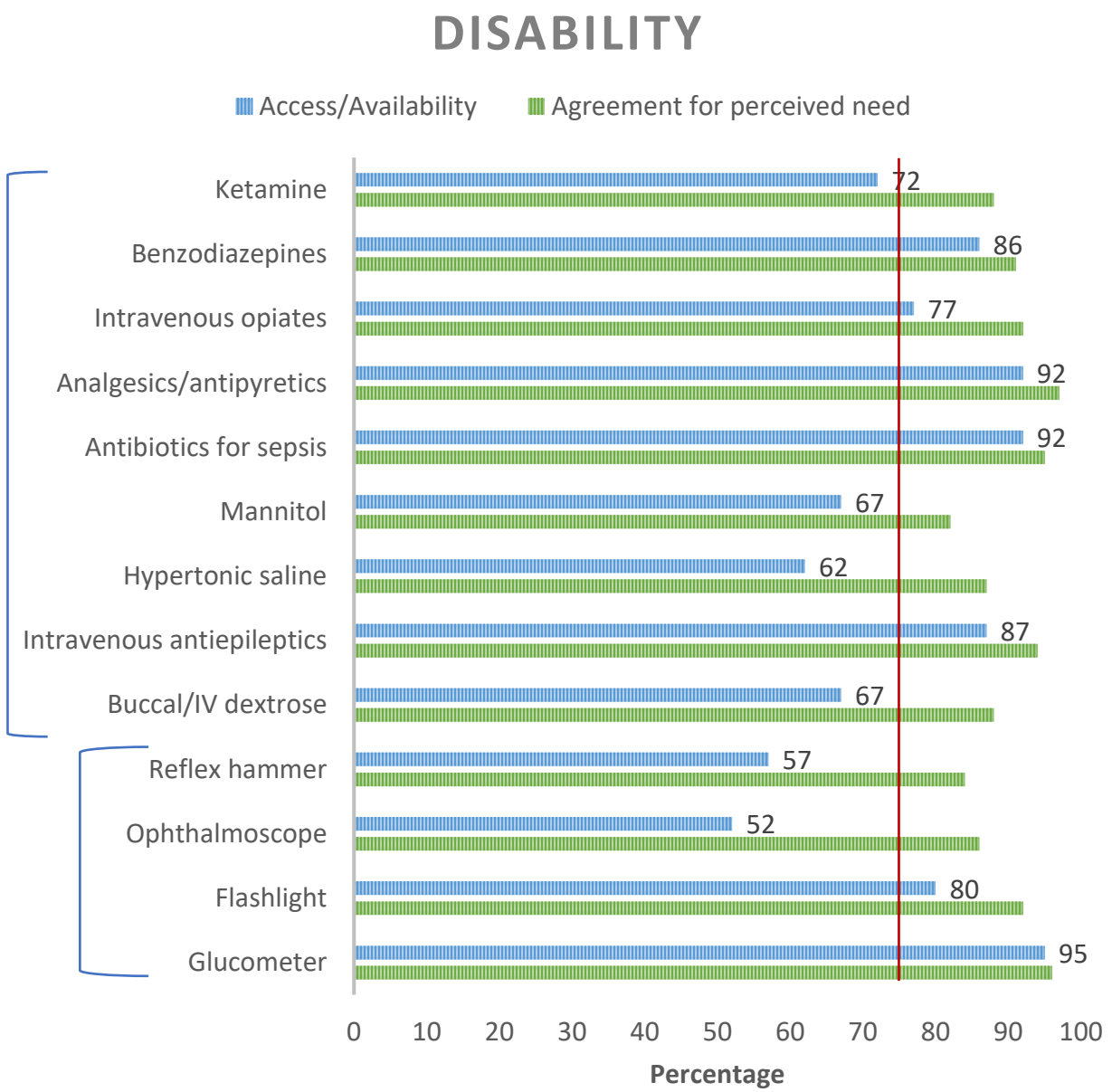
Results: Airway and Breathing



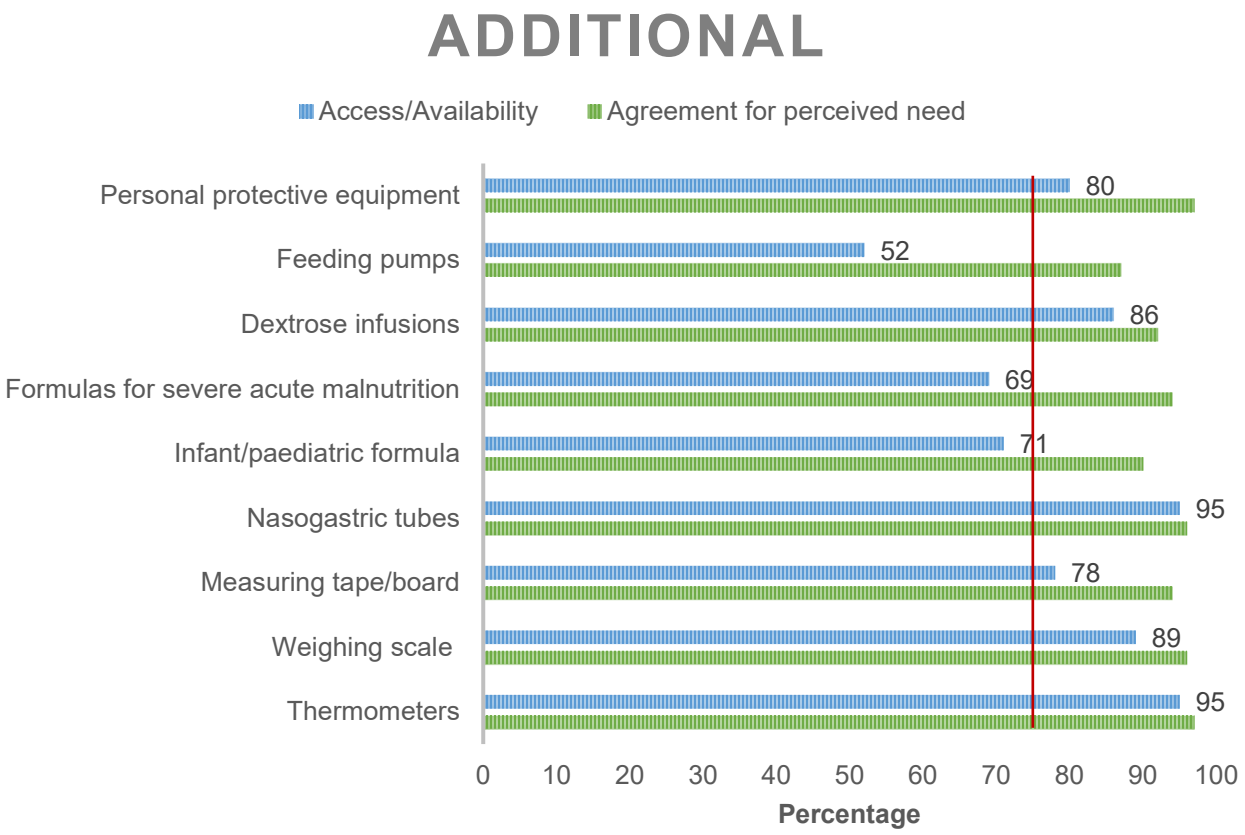


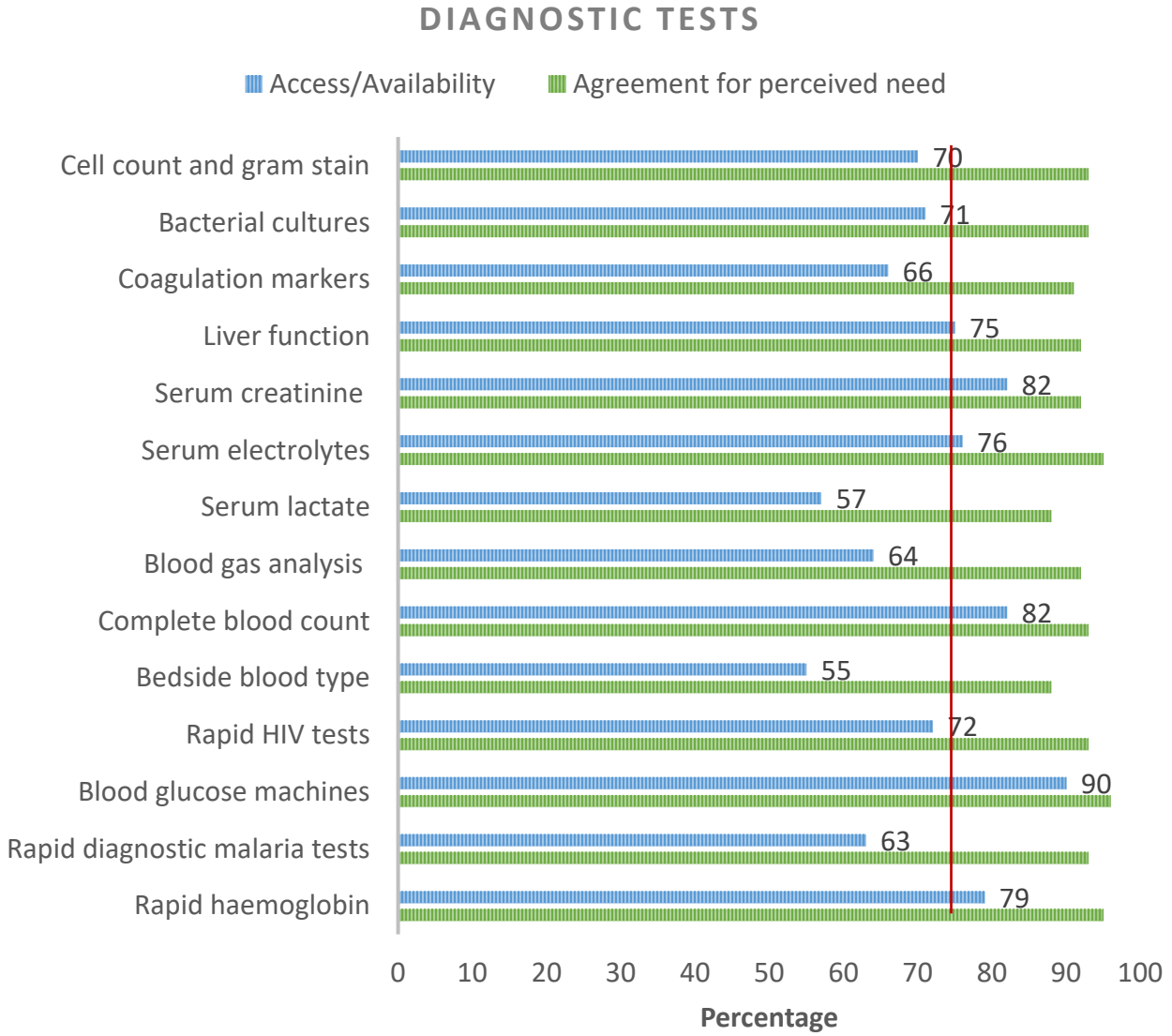
Results: Circulation and Disability



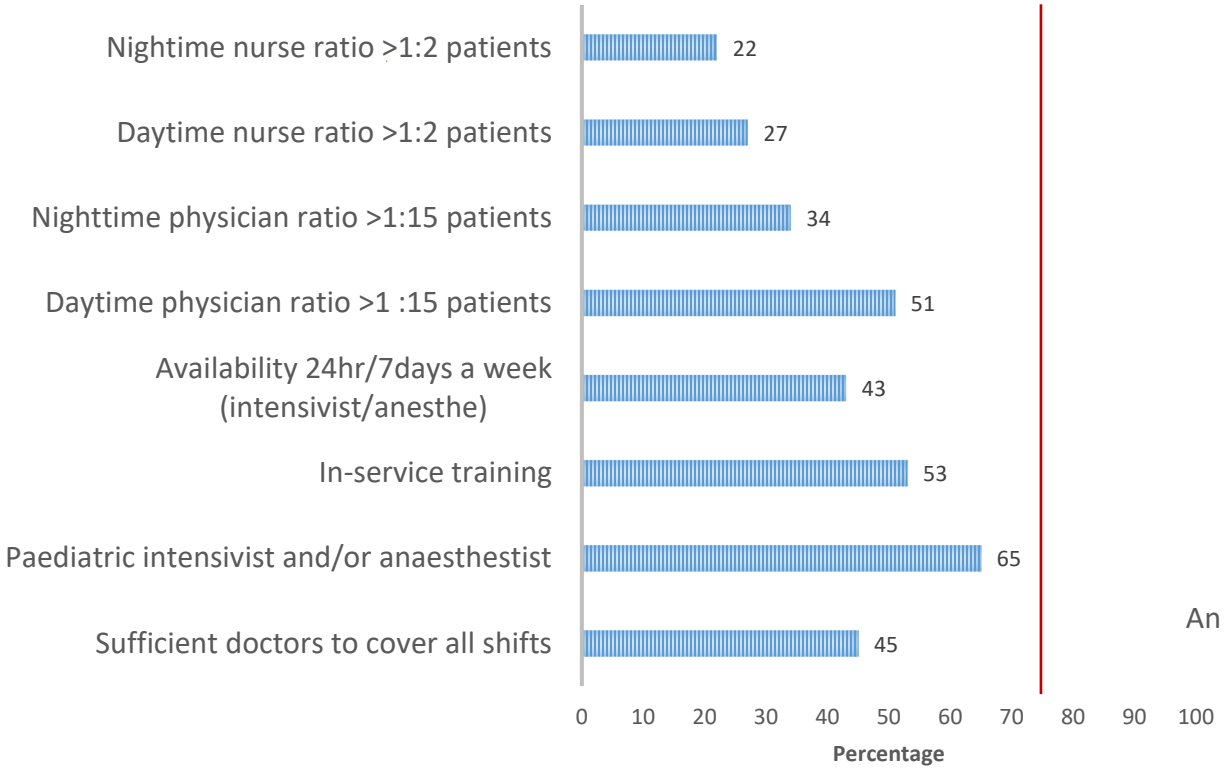


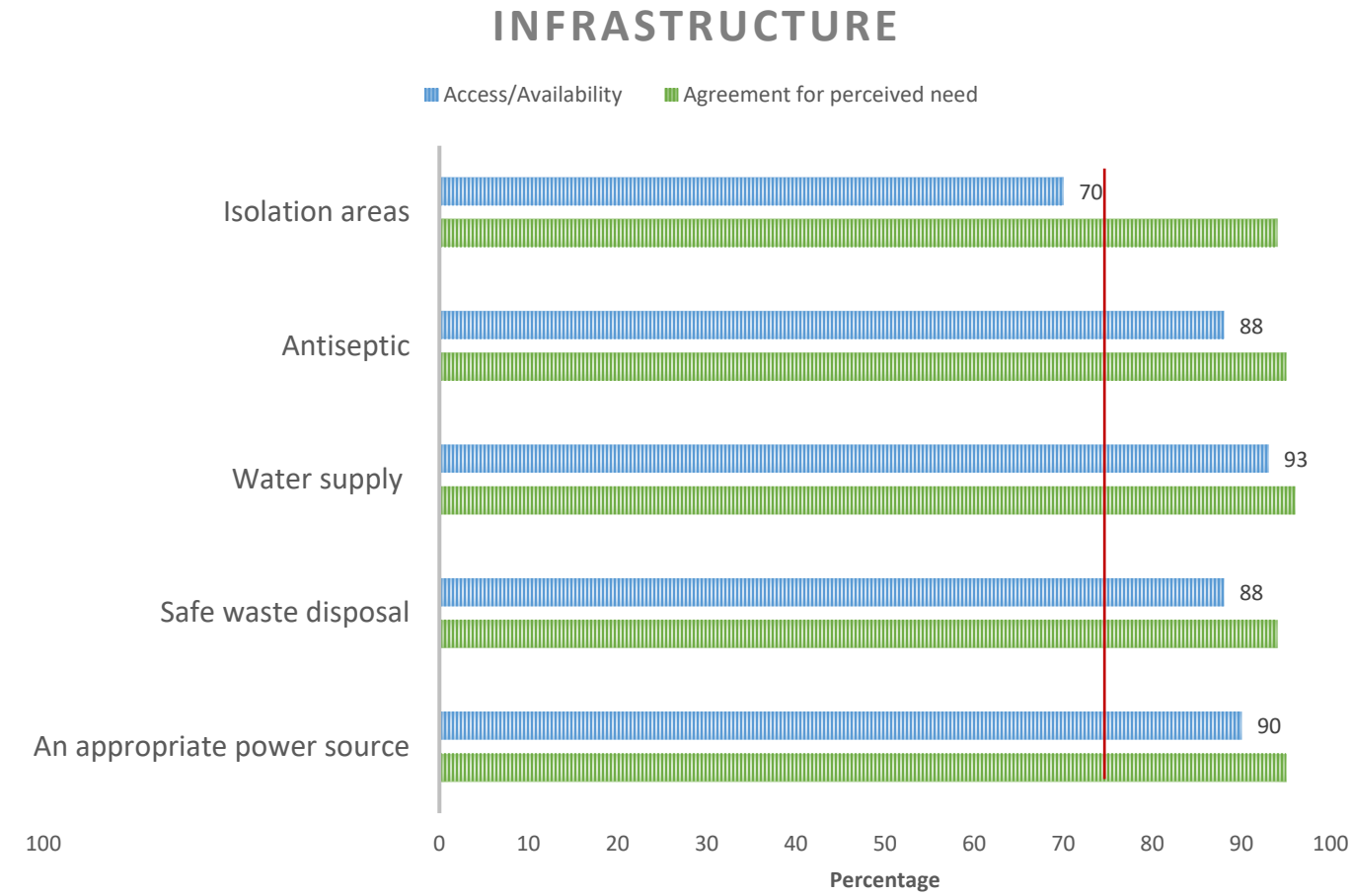
Results: Other Resources and Diagnostic Tests



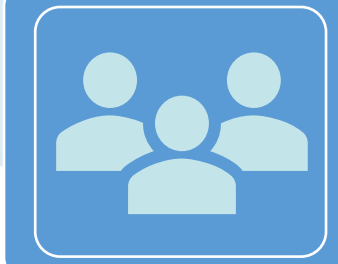


Results: Human Resources and Infrastructure





Themes of additional problems impacting care



Multidisciplinary Teams

- *"There is a lack of trained picu staff. There must be some coordination between resource-limited countries and fully resourced-countries."*

Burnout

- *"the staff are over worked and under paid"*
- *Not shifts but "continuous hours" of work*

Evidence-based guidelines

- *"Access or support to research, data use to inform clinical decisions from (local) evidence"*

Supply chain

- *"Certainly the equipment and medications are available but most often out of stock or broken down and out of service."*

Pre-Hospital Care –A Common Theme

"As a referral center, we often receive children who traveled hundreds of kilometers in an ambulance without oxygen/IV access/medications/a provider who can place or manage an artificial airway. Even if our facility was fully equipped with all of the resources described in this survey, we still wouldn't be able to save many of the children who arrive very under-resuscitated."

"Sometimes they arrive accidentally extubated or intubated in the esophagus."

"In our setting, nearly everyone uses motorcycles for transportation so transferring critically ill patients is especially complicated."

Summary of survey findings: Round 1

- Consensus established in round 1 on hospital readiness requirements with **all elements achieving ≥75% agreement** (with most items achieving >90% agreement).
- **Significant limitation** in present **availability** of these resources in respondent settings.
- New items mentioned with significant frequency (e.g. resources for pre-hospital care)

Next steps

- The subsequent round will elicit **prioritization of the defined essential standards of paediatric acute care**, and present additional frequently suggested ones to determine consensus

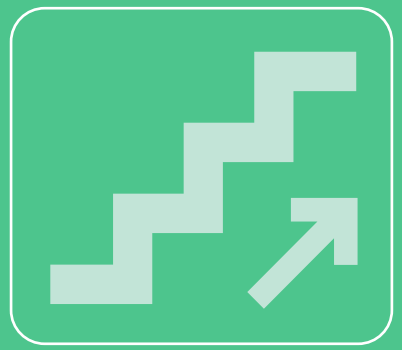
- The resulting cohesive list should be used to **inform effective emergency and critical care capacity-building in RLS**

To view the survey, scan the **QR code**

Practical take home points

Ask the local experts

- Priorities for improving the care of critically ill children in RLS should be **informed by experts practicing in those settings**



Focus on basics

- **Basic resuscitative items** have **limited** availability in RLS
- *Low hanging fruit – Pre-hospital care*

Encourage local research

- Research needed to produce context—specific data that can be used to inform clinical decisions **based on local evidence**

References

Abbas Q, Holloway A, Caporal P, et al. Global PARITY: Study Design for a Multi-Centered, International Point Prevalence Study to Estimate the Burden of Pediatric Acute Critical Illness in Resource-Limited Settings. Front Pediatr. 2022 Jan 28;9:793326.

Adhikari NK, Fowler RA, Bhagwanjee S, Rubenfeld GD. Critical care and the global burden of critical illness in adults. *The Lancet*. 2010;376(9749):1339-1346. doi:10.1016/S0140-6736(10)60446-1

Bhutta et al AE. Global PARITY: Study Design for a Multi-Centered, International Point Prevalence Study to Estimate the Burden of Pediatric Acute Critical Illness in Resource-Limited Settings. *Front Pediatr*. 2022;9. doi:10.3389/fped.2021.793326

Muttalib F, González-Dambrauskas S, Lee JH, et al. Pediatric Emergency and Critical Care Resources and Infrastructure in Resource-Limited Settings: A Multicountry Survey*. *Crit Care Med*. 2021;49(4):671-681. doi:10.1097/CCM.0000000000004769

Razzak, Junaid, Mohammad Farooq Usmani, and Zulfiqar A. Bhutta. 'Global, Regional and National Burden of Emergency Medical Diseases Using Specific Emergency Disease Indicators: Analysis of the 2015 Global Burden of Disease Study'. *BMJ Global Health* 4, no. 2 (1 March 2019): e000733.

Schell CO, Khalid K, Wharton-Smith A, et al. Essential Emergency and Critical Care: a consensus among global clinical experts. *BMJ Glob Health*. 2021;6(9):e006585. doi:10.1136/bmjgh-2021-006585