

Summary of WHO symposium on meeting the global needs for oxygen and respiratory care

recent learning, current knowledge and future direction

4 October 2023, Toronto, Canada

Problem Global access to oxygen and options to deliver respiratory support are limited, and patient needs in low- and middle-income countries (LMICs) are unmet.

Opportunity Optimizing patient and health care facilities, and linking sites through research in respiratory care will transform patient outcomes.

This document provides a high-level summary of wide-ranging presentations, discussion and feedback from participating experts. These were drawn from the [O2CoV2 research investigators](#) and representatives of global respiratory research networks (including [ANZICS](#), [BRICNet](#), [CCAA](#), [ICNARC](#), [ISARIC](#), [NIH](#), [NIHR](#), [REMAP-CAP](#)). 102 participants took part, representing all WHO regions.

Recent learning from the WHO O₂CoV2 study

The WHO O₂CoV2 study demonstrated the need for oxygen and its intelligent and sustainable delivery.

Findings

- 23% mortality from acute respiratory infection requiring oxygen (*with regional variations of 10–38%*)
- Oxygen and oxygen delivery devices are severely limited (*non-invasive advanced respiratory support 1–3% patient beds and ventilators 2–25%, depending on region*)

Contextual issues noted by LMIC-based co-investigators

- Continual communication and support from the central unit (WHO) was essential to research success
- Including non-research staff gave local ownership
- Research questions framed within the needs of high-income countries mean there are significant real-world evidence gaps in LMICs (e.g. the optimal use of non-rebreather masks for oxygen delivery)
- Health facility designs and procedures determine clinical decisions, but there is a lot of flexibility
- Understanding “how” interventions are applied in research is as important as the *P* value

Summary: Uncertainty around the utility of non-invasive ventilation strategies and contextual considerations require pragmatic evaluation of existing options, including enhanced supportive care.

Findings presented by [Pryanka Relan](#) and [Yaseen Arabi](#), context from Masooma Aqeel (Pakistan), Zeina Bacha (Lebanon), Monica Cruz (Brazil), Mulinda Nyirenda (Malawi)

Current knowledge

Participants shared their experience of current clinical trials networks in supporting clinical research which benefits patients in LMICs. The main themes are summarized in the following figure.

Opportunities and suggestions for WHO to improve equitable access to global research were identified:

Regulation and oversight

- Ensuring trust with regulators (overall framework and data policies for exchange and use).

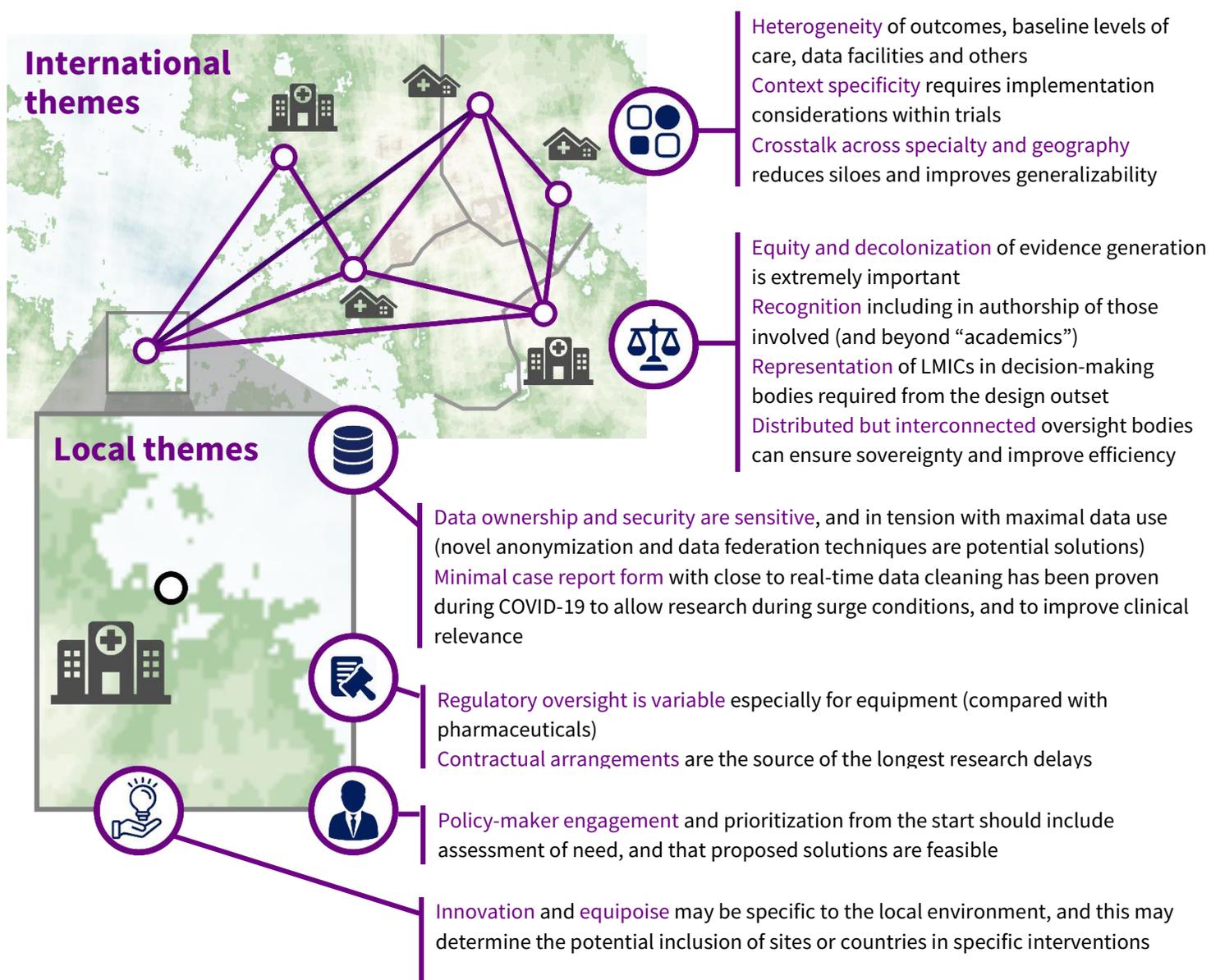
Harmonization and standardization of management of acute illness

- Provision of a certification process for health care professionals involved in research which updates “Good Clinical Practice”, including addressing observational studies.
- Framework for data (harmonization of data elements, e-medical record capability).
- Disease/syndrome definitions (for example ARDS, COVID-19 severity), core outcome sets.

Connection

- Enabling links and supporting prioritization with policy-makers at country and regional level.
- Convening “networks of trial networks”.
- Interface with ministries of health through which academic/other institutions can partner.
- Strengthening multi-layered partnerships within regions/countries to broaden beyond the typical high-income countries-LMICs linkages.

Thematic summary of the drivers of success of global respiratory research



Future direction

Participants were asked to translate their experience of observational studies to the future design of an intervention. The findings have been synthesized by the following themes.

Scope of work	<p>Globally, and particularly in LMICs, care of critically ill patients is performed outside of intensive care units (ICUs), but current clinical trials of critically ill patients are almost universally ICU based. Broadening the focus to “acute care” or “critical care” is likely to be beneficial and relevant to more people.</p> <p>Inclusive populations, including obstetrics, paediatrics.</p>
Integration with routine care	<p>Research should serve clinical care, and health care professionals must be engaged for success. This can be enhanced by incorporation of quality improvement, local leadership/champions for clinical research and local data uptake (such as analytics and dashboards for feedback).</p>
Clinical expectations and standards of care	<p>Equipoise may vary depending on how interventions might perform within the wider environment. Heterogeneity of facilities, patient populations and overall levels of health will mean some questions are not universally relevant.</p> <p>WHO Basic Emergency Care and other initiatives can provide some fundamental standards on which a more even standard of care can be delivered or harmonized.</p>
Data	<p>Decentralized or federated data management and protocolized anonymization protocols can improve equity and reduce concerns related to local ownership.</p> <p>Sources of data, where possible electronic medical records, could enhance integration with care, but would currently exclude many LMIC facilities.</p>
Creating an enabling research environment	<p>Multiple enabling strategies were suggested, including research training, local data capabilities, paid research time, support for governance and infrastructure, import of therapeutics and other research-specific items, and logistics at country and site level.</p>
Inclusion	<p>Patient involvement at the country level through design and practical considerations is key. Prioritization of outcomes can be enacted at the higher/international level, in collaboration with priority-setting partnerships.</p> <p>Private providers may have significant importance on the supplier side or research delivery, depending on countries’ systems.</p>
Study designs	<p>Platform trials have practical and efficiency benefits, particularly within existing networks, but geographic areas of need must be expanded.</p> <p>System interventions should be strongly considered (including complex interventions which are context appropriate, e.g. protocolized care). Cluster trials have the potential to address these questions.</p> <p>Evaluation of how trial results can be interpreted (implementation science input) will be required to make sense of heterogeneity.</p>

Conclusion

The challenges extended by participants included:

*“Think big...
...but do something tangible.”*

“Be inclusive and relevant.”

The themes summarized in this document represent the most frequent, and the most consistent messages, from researchers and clinicians.

Multiple requests were made for WHO support.

Facilitating research which is patient-focused and globally useful will require broad discussion and inclusion of both existing and new partners. It should be as simple as possible to execute, driven by light data requirements, and incorporate relevant design and intervention choices to deliver affordable large-scale clinical trials.

Example research questions

- High-flow nasal oxygen (HFNO) versus continuous positive airway pressure versus non-invasive ventilation for pneumonia and other respiratory failure.
- How can protocolized therapy/ oxygen use decision-making enhance patient outcomes?
- What is the typical oxygen consumption with HFNO?
- How can clinical decision-making be safely driven by the most widely available measures (such as SpO₂ rather than arterial blood gases in respiratory failure)?
- What is the optimal use of therapeutics, e.g. corticosteroids, outside of SARS-CoV-2 infection?

Next steps

Resulting from these discussions, the WHO Health Emergencies clinical team will:

- **Develop and advertise an Expression of Interest** to ensure engagement with an open and broad representation of a global network for acute respiratory research relevant to health emergencies.
- **Reconvene the group** in May 2024.
- **Develop an upcoming trial** (through 2024).



Thanks

With many thanks to all the partners who gave their time and consideration to this WHO symposium.

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