



# The OpenOx Collaborative Community

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Center for Health Equity  
in Surgery & Anesthesia  
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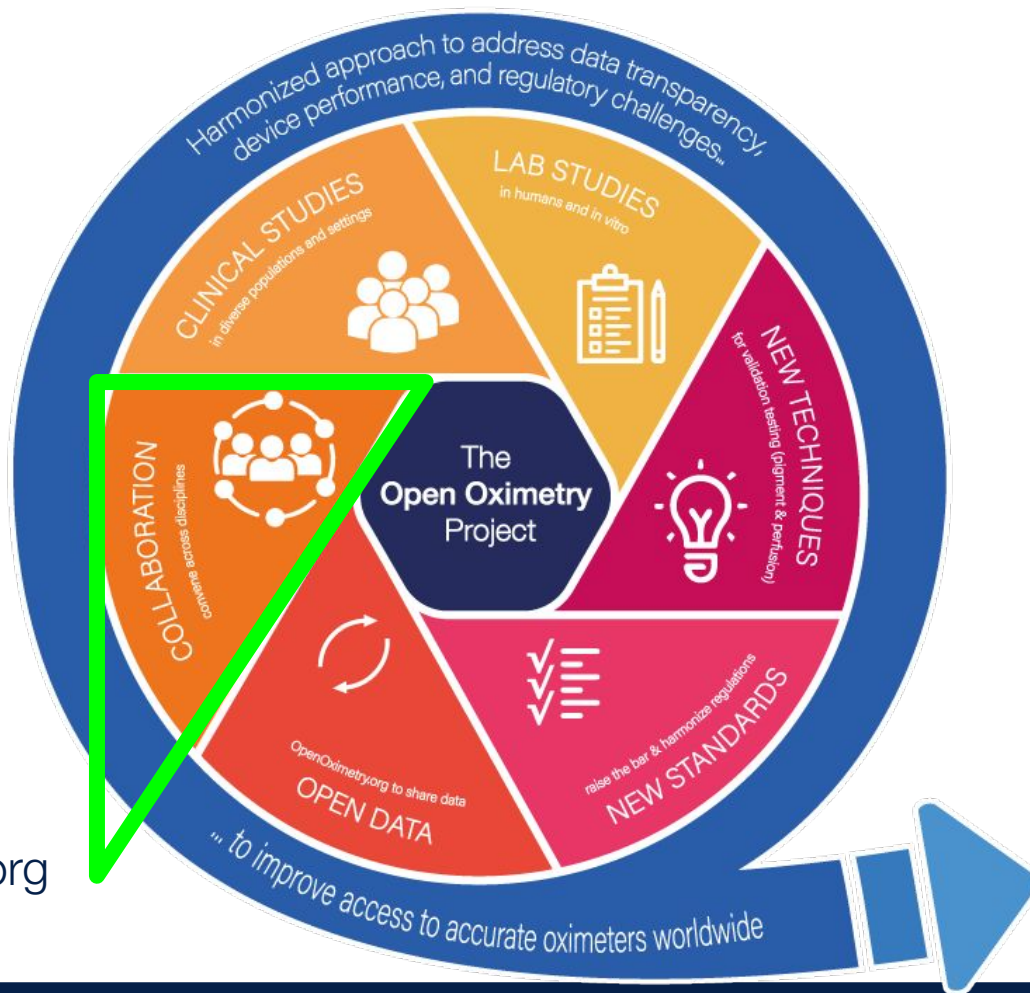
# Conflicts & disclosures

- I have NO financial disclosure or conflicts of interest with the presented material in this presentation

While manufacturers participate in the collaborative community, none provides financial support.

# Global health issues

- Many people globally lack safe, equitable **access to pulse oximetry**
- **Oximeter performance** in people with **dark skin pigmentation** is incompletely characterized and is inadequately regulated
- Limited access to **data and education** around pulse oximeter performance
- These issues have been long known, but during the COVID19 pandemic were for the first time **linked to health and healthcare disparities**



 OpenOximetry.org

# Collaborative Community

[openoximetry.org/community](https://openoximetry.org/community)



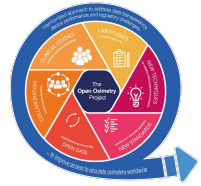
## ■ Objectives

- Identify challenges
- Improve best practices & standards
- Facilitate data sharing & communication
- Advocate and inform regulatory bodies
- Convene diverse, global experts & stakeholders
- Advance innovation, safety, & equity



# Collaborative Community

[openoximetry.org/community](https://openoximetry.org/community)



- 9 meetings
- **>150 members**
- Oximetry experts, industry, regulatory, global health, anthropologists, patient safety, engineers, healthcare professionals, NGOs
- **>18 countries**



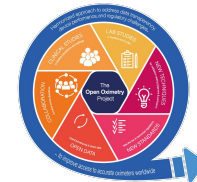
# Collaborative Community

[openoximetry.org/community](https://openoximetry.org/community)



# CC: Subgroups

[openoximetry.org/community](https://openoximetry.org/community)



## 1 Clinical Trials

Harmonizing & expanding data collection protocols

## 2 Education & Comms

Communicating best practices for safe oximeter use

## 3 Skin Color Diversity

Developing best practices for diversity in oximeter studies

## 4 Data Sharing

Scaling and harmonizing available oximeter data for R&D



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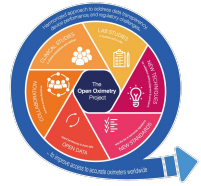
## 1 Clinical Trials

Harmonizing & expanding  
data collection protocols

- 6 protocols
- 8 clinical trials
- Multiple lab studies

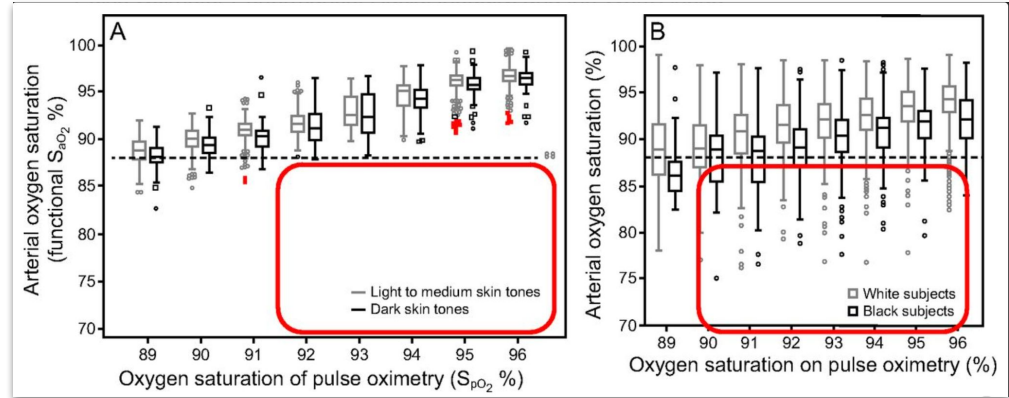
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## 1 Clinical Trials

Harmonizing & expanding data collection protocols



Lab

vs

Clinical

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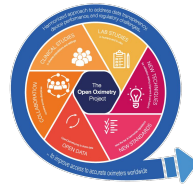
## Education & Comms

Communicating best practices for safe oximeter use

- Consensus on **best practices** for oximeter use
- Locally-relevant **education materials**
- **Easy to understand**

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## Education & Comms

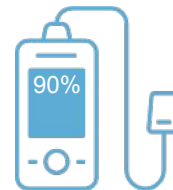
Communicating best practices for safe oximeter use

Individual typology angle (ITA)

Root mean square error (ARMS)

Non-disparate bias

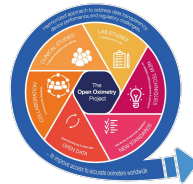
Error



Accuracy

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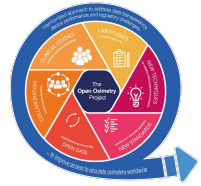
## 3 Skin color diversity

Developing best practices for diversity in oximeter studies

- Clarify **best practices** for ensuring diversity of skin color
- Diversity **toolkit** for device studies to ensure appropriate use of race, ethnicity or skin color

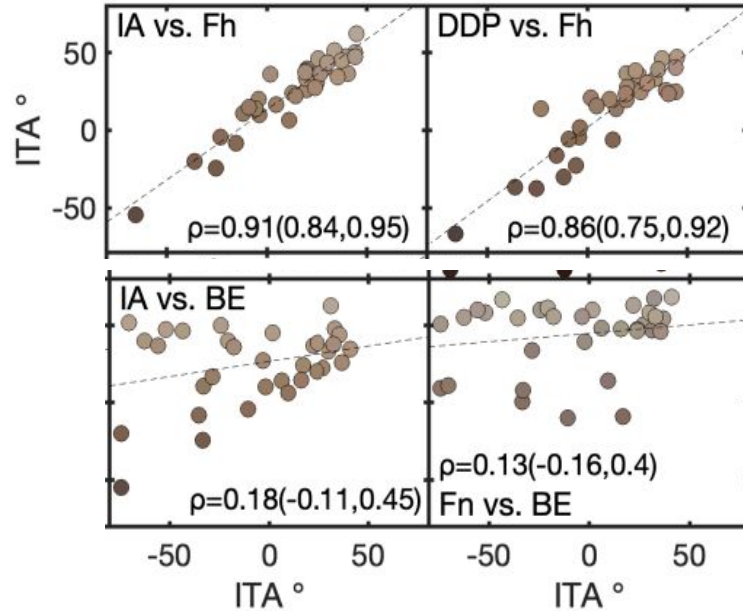
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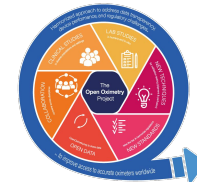
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Developing best practices for diversity in oximeter studies



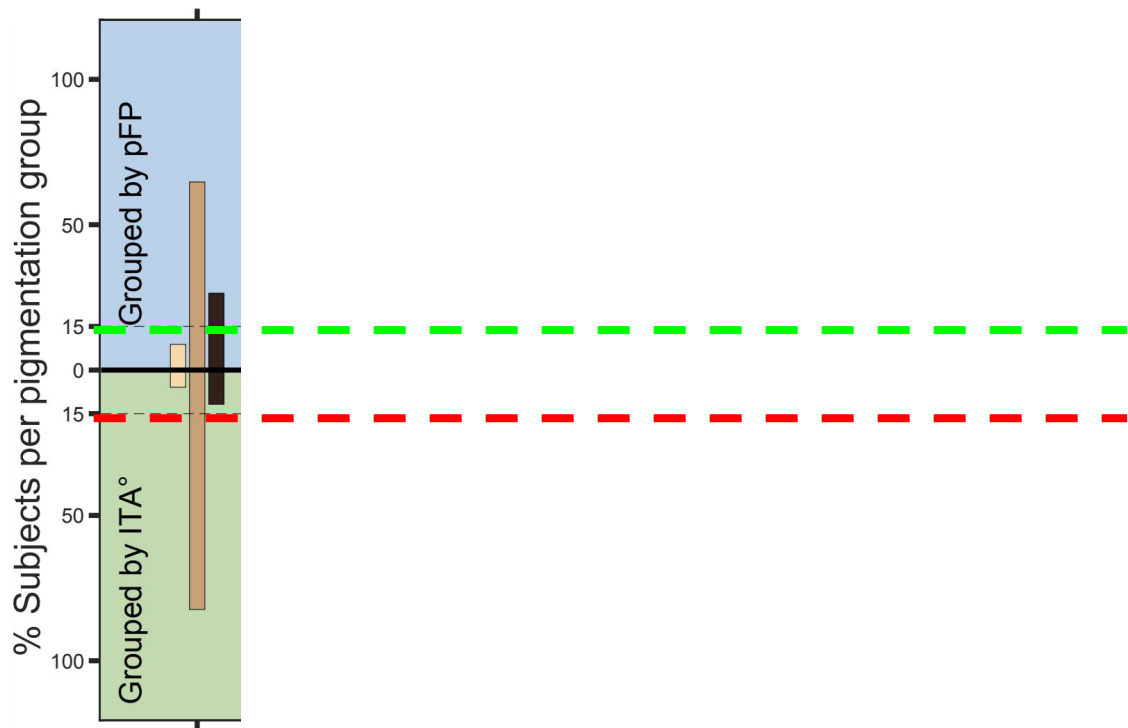
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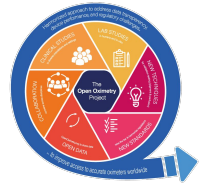
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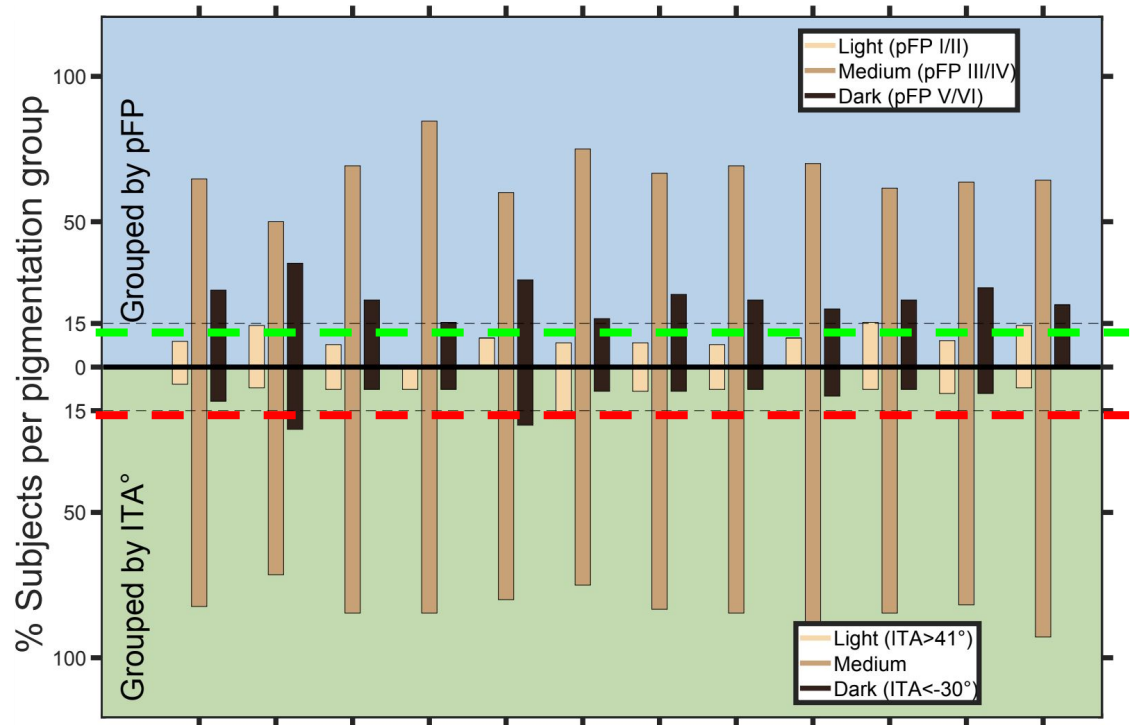
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## 3 Skin color diversity

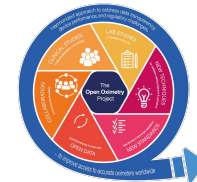
Developing best practices for diversity in oximeter studies





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## 3 Skin color diversity

Developing best practices for diversity in oximeter studies

Individual Typology Angle $ITA^\circ$	Skin classification
$ITA^\circ > 55^\circ$	Very light
$41^\circ < ITA^\circ < 55^\circ$	Light
$28^\circ < ITA^\circ < 41^\circ$	Intermediate
$10^\circ < ITA^\circ < 28^\circ$	Tan
$-30^\circ < ITA^\circ < 10^\circ$	Brown
$ITA^\circ < -30^\circ$	Dark

?



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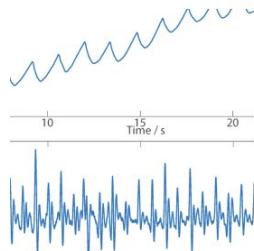
## Data Sharing

Scaling & harmonizing oximeter data for R&D

- Common data models
- Data networks and repositories to scale
- New data sources & analytics
- Raw pulse oximetry data

# Data Sharing

[openoximetry.org/data-repository](https://openoximetry.org/data-repository)



Updated: 2023.10.9

## Raw Data Repository

The Open Oximetry team is collecting data that we want to share with the global community of stakeholders.

Download (coming soon)

Contribute (coming soon)

A screenshot of the Device Performance Library interface. It shows two device listings. The first is 'Contec OLED CM550NA BD13002' with a purchase cost of \$20 and a list price of \$760.0. The second is 'Netlcor PM1000n Bedside Respirator Monitoring System' with a purchase cost of \$2000 and a list price of \$2528. Both listings include 'OpenOx' performance metrics and a 'Disputed' status for the first device.

Updated: 2023.10.1

## Device Performance Library

The Open Oximetry team is collecting data that we want to share with the global community of stakeholders.

Browse Data

# Lessons learned & future directions

- Challenges and priorities differ by setting
  - **Balance of access and performance**
- Best practices for skin pigment diversity are evolving
  - **More data from diverse communities**
- More data from lab and clinical settings are needed
  - **New strategies for data sharing** and collection are needed

# Acknowledgements

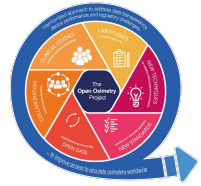


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# Data Sharing

[openoximetry.org/data-repository](https://openoximetry.org/data-repository)



- **Real world and lab evidence at scale**
- **Local and centralized data networks**
- **Shared analysis**