Confounding effect of a healthcare provider strike on TIMCI study outcomes in Senegal

P1-B2

TIMCI
Tools for Integrated Management of Childhood Illness
SENEGAL

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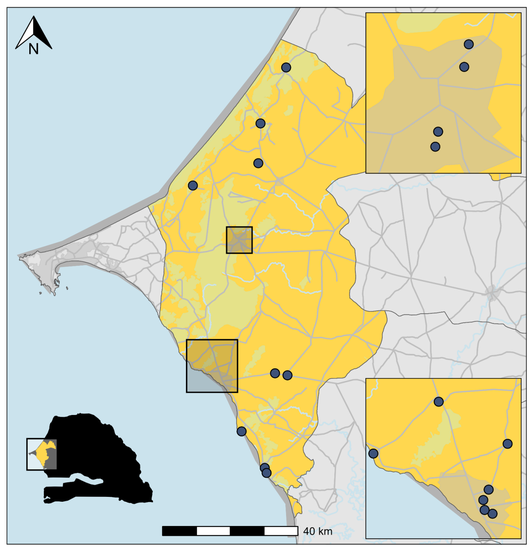
Health system disruptions, such as strikes, can have a confounding effect on pragmatic study outcomes. Accounting for organizational and functional health system contexts throughout the entire data lifecycle is essential for generating robust actionable evidence on effectiveness.

BACKGROUND

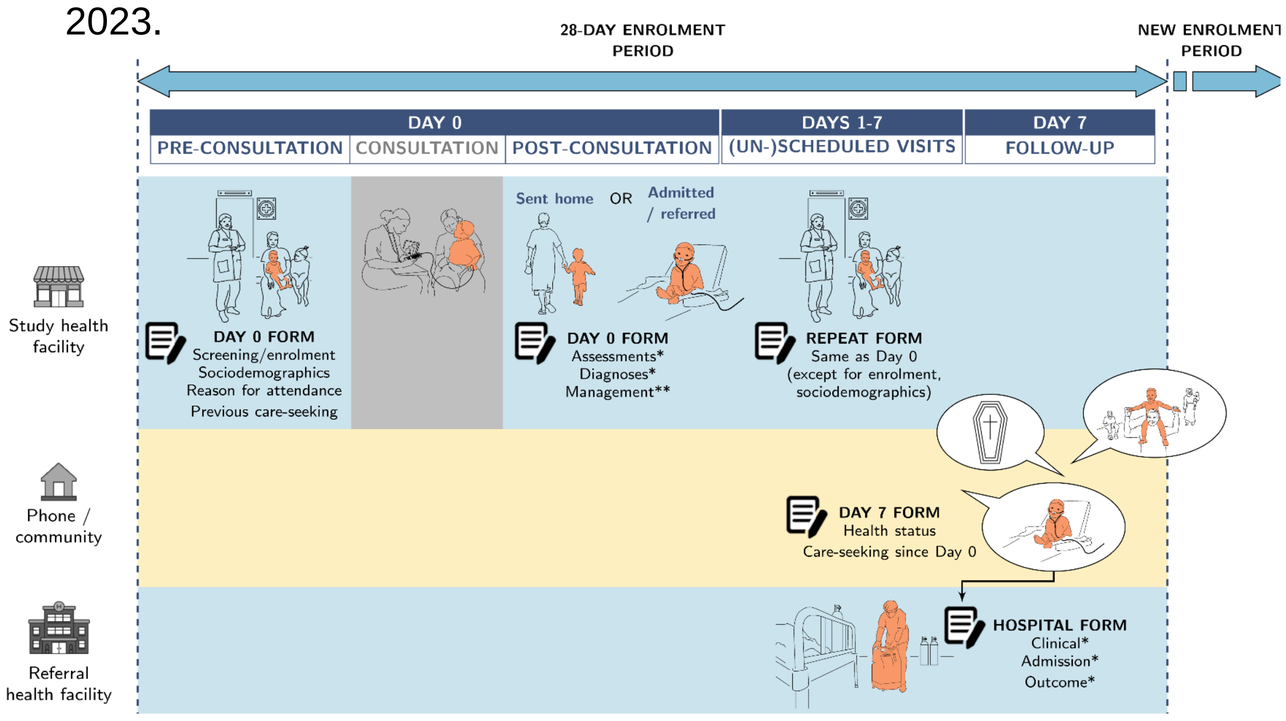
- The **Tools for Integrated Management of Childhood Illness (TIMCI)** project sought to evaluate the introduction in 4 countries of **pulse oximetry** and **clinical decision support algorithms (CDSAs)** to primary healthcare facilities for improving child health globally.
- An unexpected and **prolonged healthcare provider (HCP) strike** disrupted the intervention and study implementation in **Senegal**.



To explore the influence of the HCP strike on TIMCI study outcomes in Senegal

METHODS

- **Quasi-experimental pre-post study** (NCT05065320) in 20 health posts in the region of Thiès, between August 16, 2021 and March 31, 2023.



- **Children 0-59 months** attending study facilities screened and enrolled by Research assistants (RAs).
- Day 0 consultation data collected from **caregivers before and after consultation**, and from **clinical records**.

Pulse oximetry uptake = oxygen saturation (SpO_2) documented by HCPs in registers and captured by RAs
Severe hypoxaemia = SpO_2 <92%

- Post-hoc analysis: **subpopulation** of children **eligible for pulse oximetry** (all children 1-59 days + children 2-59 months with cough or difficulty breathing) after intervention roll-out.

ADDITIONAL KEY INFORMATION

- Contact: jeanaugustindiegane.tine@ucad.edu.sn
- Funding: Unitaid grant n°2019-35-TIMCI: Tools for Integrated Management of Childhood Illness
- TIMCI protocol paper: 10.1080/16549716.2024.2326253

RESULTS

- Data from **6,245 children** analysed, including 928 (15%) aged 1-59 days.
- **43.9%** pulse oximetry uptake overall.
- Outside strike periods: **55.2 %** uptake: **66.0%** immediately after intervention roll-out (P1); **47.1%** in P2; **58.2%** in P3, which included supportive supervision.
- During strike periods: uptake significantly decreased (**35.2%**, p-value < 0.001), with variations ranging from **26.6%** (S1) to **40.8%** (S3, with partial restart of the intervention, but restricted access to registers).
- Detection of severe hypoxemic children decreased during strike periods (**1.5%** vs. **1.9%**).

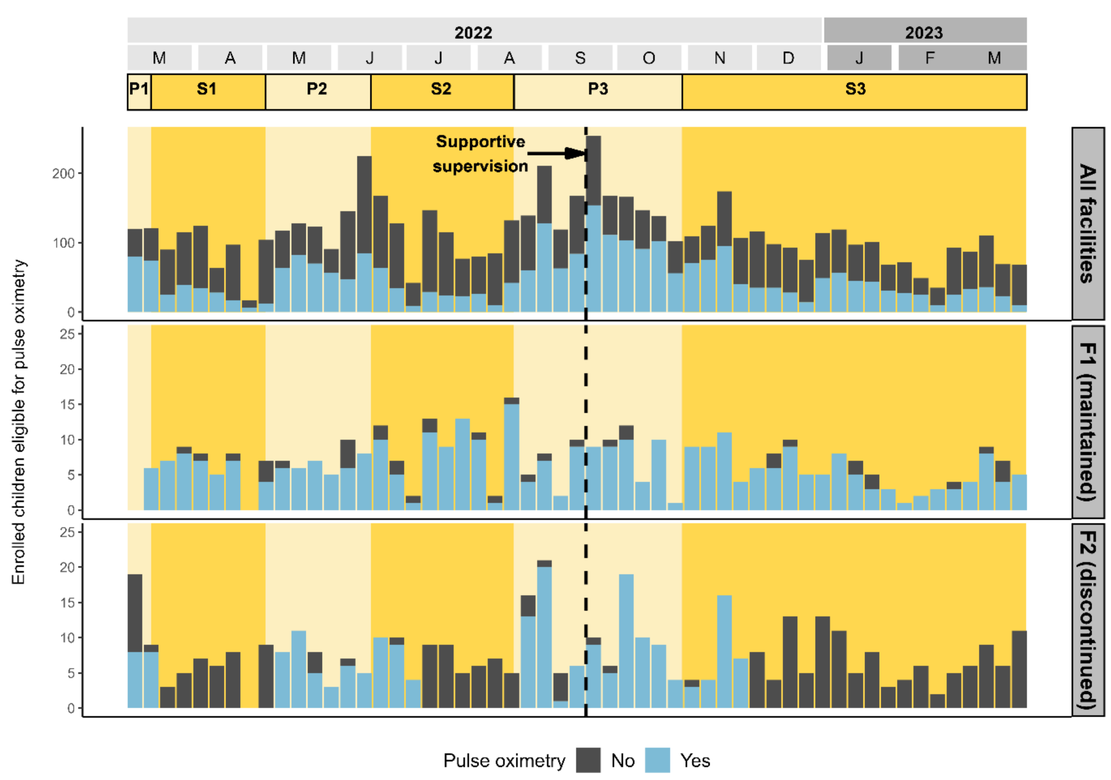
Table 1. Pulse oximetry uptake and severe hypoxaemia prevalence across intervention periods.

	Full intervention	Strike-free periods				Strike-affected periods			
Variable	**N = 6,245**[1]	**Overall**, N = 2,721[1]	**P1**, N = 188[1]	**P2**, N = 869[1]	**P3**, N = 1,664[1]	**Overall**, N = 3,524[1]	**S1**, N = 624[1]	**S2**, N = 922[1]	**S3**, N = 1,978[1]
Pulse oximetry	2,741 (43.9%)	1,501 (55.2%)	124 (66.0%)	409 (47.1%)	968 (58.2%)	1,240 (35.2%)	187 (30.0%)	245 (26.6%)	808 (40.8%)
Hypoxaemia	47 / 2,741 (1.7%)	28 / 1,501 (1.9%)	1 / 124 (0.8%)	11 / 409 (2.7%)	16 / 968 (1.7%)	19 / 1,240 (1.5%)	2 / 187 (1.1%)	5 / 245 (2.0%)	12 / 808 (1.5%)

[1]n (%); n / N (%)

- Some facilities maintained consistent uptake (F1), while others underwent strike discontinuations (F2), with an average uptake ranging from **8.9%** to **100%**.

Figure 1. Pulse oximetry uptake patterns over time.



CONCLUSIONS

The HCP strike has a **confounding effect** on pulse oximetry uptake, and may contribute to lower hypoxaemia prevalence estimates. Contributing factors are likely to include **non-utilization** or **non-documentation** of utilization of the intervention by HCPs, **restricted access to registers/patients** for RAs, and **changes in care-seeking behaviors**.