

# Replication package for “Management practices and quality of care: Evidence from the private health care sector in Tanzania”

## 1. Overview

This document sets out instructions to replicate all the results in the paper both in the main text and the online appendix (Powell-Jackson et al 2023a). This replication package includes: a readme file; the code used to replicate the results; and additional files containing survey tools and ethics approvals.

The code in the replication package is organised into three categories: code used for cleaning, code used for merging data, and code used for analysis to produce the tables and figures. The `master_clean.do` file calls the cleaning and merging code files to construct the analysis datasets from seven raw anonymized datasets. The `analysis.do` file runs the code to produce the tables and figures. All cleaning and analysis use Stata.

## 2. Data availability

All the datasets used in the analysis are considered primary data. They come from surveys conducted either by the research team or partner organisations involved in the original trial. As required by the ethics committees, which granted approval for the original study, the data cannot be made publicly available.

The data may be obtained with Data Use Agreements from the London School of Hygiene and Tropical Medicine. Data are available for the sole purpose of replication (Powell-Jackson et al 2023b). Researchers interested in requesting access to the data should visit LSHTM’s data repository, DataCompass (<https://datacompass.lshtm.ac.uk/>), where the data are stored under the following DOI: <https://doi.org/10.17037/DATA.00003622>

The data sources and the files that contain the raw data are described in the table below.

Name	Timing	File	Location	Provided
Health facility survey	Endline	facility_raw.dta	input\	No
Standardised patient survey	Endline	sp_raw.dta	input\	No
Clinical observations of infection, prevention and control survey	Endline	ipc_raw.dta	input\	No
Health care worker form	Endline	hcw.raw.dta	input\	No
SafeCare assessment survey	Baseline & endline	safecare.raw.dta	input\	No
Situation analysis survey	Baseline	sa_raw.dta	input\	No
Health facility treatment assignment	Baseline	facility_treatment.dta	input\	No

The data collection methods are described fully in King et al (2021) and Powell-Jackson et al (2023a). The data collection tools are publicly available without restriction as part of the replication package on the Economic Journal’s community of Zenodo (Powell-Jackson et al 2023c).

## 3. Code availability

Code for data cleaning and analysis is provided as part of the replication package on Economic Journal’s community of Zenodo (Powell-Jackson et al 2023c). It will be uploaded once the paper has been accepted.

#### 4. Computational requirements

The code was last run using Stata version SE 17.0 in Windows 10. The following dependencies need to be installed:

- outreg2 (distribution date: 2014-08-17)
- psacalc (distribution date: 2016-12-18)

The code was last run on an 11<sup>th</sup> Generation Intel Core i7 laptop with 16 GB of RAM and a 64-bit operating system. It took less than 2 minutes to run the cleaning and analysis code.

#### 5. Description of code

- a. Cleaning and variable creation. The replication package contains the following do files that clean each raw dataset to generate the variables to be used in the analysis:
  - `cleaning_sp.do`: this generates some of the outcomes and covariates needed from the standardized patient dataset
  - `cleaning_sp_effort.do`: this generates the health worker effort outcomes from the standardized patient dataset
  - `cleaning_ipc.do`: this generates the IPC outcomes and patient covariates from the clinical observation dataset
  - `cleaning_facility.do`: this generates the main management measure and other variables from the health facility survey
  - `cleaning_hcw.do`: this generates a measure of medical officers working at the health facility
  - `cleaning_safecare.do`: this generates the SafeCare measure of management
  - `cleaning_basesituation.do`: this generates several facility characteristics: number of consultations rooms and number of beds
- b. Assembling datasets. The replication package contains the following do files that merge the clean datasets to produce the analysis datasets:
  - `merge_sp.do`: this merges the cleaned standardized patient dataset with the facility level datasets to produce the analysis dataset `sp_master.dta`, which is used for all analysis of the standardized patient outcomes
  - `merge_ipc.do`: this merges the cleaned clinical observations dataset with the facility level datasets to produce the analysis dataset `ipc_master.dta`, which is used for all analysis of the IPC compliance outcomes
  - `merge_rctmanagement.do`: this merges the cleaned facility level datasets to produce the analysis dataset `rctmanagement_master.dta` that is used for estimating the effect of the intervention on management outcomes
- c. Cleaning and assembling. The do file `master_clean.do` calls the cleaning and merging do files listed above to perform all the cleaning and merging required to produce the analysis datasets.
- d. Analysis. The do file `analysis.do` performs the analyses to produce the results in the published paper.

#### 6. Instructions to replicators

Create the following folders: code; input; and output. Place the Stata do files in the code folder. Place the original raw datasets in the input folder. Assembled datasets (cleaned and merged) and results are saved into the output folder.

Edit code\master\_clean.do to adjust the default path.

Install outreg2 and psacalc.

Run code\master\_clean.do to perform the cleaning and assembling of datasets for analysis.

Run code\analysis.do to produce the tables and figures.

## 7. List of tables and figures

Number	Title	Output file
Table 1	Summary statistics on facility characteristics and quality of care metrics	table1a.xls table1b.xls table1c.xls
Table 2	Management and quality of care for standardised patients	table2a.xls table2b.xls
Table 3	Management and compliance with infection prevention and control practices	table3a.xls table3b.xls
Table 4	Experimental effect of SafeCare on management practices and quality of care	table4a.xls table4b.xls
Figure 1	Distribution of the facility survey management score	figure1.png
Figure 2	Treatment effects on domains within the SafeCare management score	figure2.xls
Table B1	Summary statistics on additional facility characteristics	tableb1.xls
Table B2	Management and correct treatment by standardised patient case	tableb2.xls
Table B3	Management and prices charged to standardised patients	tableb3.xls
Table B4	Robustness to controlling for staff qualifications: management and quality for SPs	tableb4.xls
Table B5	Robustness to controlling for staff qualifications: management and IPC compliance	tableb5.xls
Table B6	Robustness checks: management and correct treatment	tableb6.xls
Table B7	Robustness checks: management and IPC compliance	tableb7.xls
Table B8	Baseline balance on facility characteristics	tableb8.xls

## 8. References

King, J. J. C., T. Powell-Jackson, C. Makungu, et al. (2021). "Effect of a multifaceted intervention to improve clinical quality of care through stepwise certification (SafeCare) in health-care facilities in Tanzania: a cluster-randomised controlled trial." *Lancet Glob Health* 9(9): e1262-e1272.

T. Powell-Jackson, King, J. J. C., C. Makungu, et al. (2023a). "Management practices and quality of care: Evidence from the private health care sector in Tanzania." *The Economic Journal*.

T. Powell-Jackson, King, J. J. C., C. Makungu, et al. (2023b). "Data for: Management practices and quality of care: Evidence from the private health care sector in Tanzania." [Data Collection]. London School of Hygiene & Tropical Medicine, London, United Kingdom. <https://doi.org/10.17037/DATA.00003622>

T. Powell-Jackson, King, J. J. C., C. Makungu, et al. (2023c). "Replication package for: Management practices and quality of care: Evidence from the private health care sector in Tanzania." Zenodo.

## **9. Version**

This readme file is version 2023-06-19 and was written by Timothy Powell-Jackson.