South Africa - Comparing methods for estimating PCR testing coverage

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Report generated on: July 12, 2021

Visit our data catalog at: https://data.ahri.org/index.php

Overview

Identification

ID NUMBER
AHRI.Comparing.estimates.of.testing.coverage

Version

VERSION DESCRIPTION
V1.0.0

Overview

ABSTRACT
Early infant HIV diagnosis (EID) is critical to ensuring timely diagnosis of HIV-exposed infants, and treatment in those found to be infected. However estimates of coverage vary considerably, depending on data sources used. We used 4 methods to estimate coverage among a historical cohort of HIV-exposed infants in rural South Africa, between 2010-2016. Three datasets from this analysis are available on the repository.

· Dataset 1 (NHLS): This dataset includes data from NHLS, the National Health Laboratory Service. NHLS is responsible for laboratory testing in public facilities in South Africa, and data on all HIV DNA PCR tests conducted at the 17 healthcare facilities within the Hlabisa health sub-district (regardless of the age of the individual) between 1st June 2010 and 1st July 2017 were downloaded from the NHLS database through a secure file transfer protocol. A deterministic and probabilistic data linkage algorithm, based on first name, surname, sex, date of birth, facility at which the test was conducted and the infant's facility ID was used to identify repeat tests on the same child.

· Dataset 2 (ACDIS): This dataset includes all infants from ACDIS, AHRI's demographic surveillance database, who were born to women with HIV. Maternal HIV status was determined on the basis of either a positive HIV test result in the AHRI serosurvey, or on linkage to TIER.net, the national ART surveillance system. To estimate testing coverage, these HIV-exposed infants were linked to deduplicated PCR test data from the National Health Laboratory Service (NHLS, responsible for laboratory testing in public facilities in South Africa) from healthcare facilities in the Hlabisa health-subdistrict. Linkage was conducted using a deterministic and probabilistic linkage algorithm based on infant's first name, surname, date of birth and sex.

· Dataset 3 (MONARCH): This dataset includes data from the MONARCH trial, which evaluated the impact of a quality improvement intervention package on PMTCT processes. All children in South Africa are given a patient-held medical record at birth, called the Road-to-Health Booklet, in which information including HIV testing is recorded. As part of the trial, booklets belonging to all infants born to women receiving antenatal care at the 7 clinics in the AHRI surveillance area between July 2015 and December 2016 were photographed up to the 6-week postnatal visit. This dataset includes one record per HIV-exposed infant, with variables indicating whether a PCR test was recorded in their Road-to-Health Booklet and when their booklet was photographed.

KIND OF DATA

UNITS OF ANALYSIS
Dataset 1 (NHLS): One record per infant with a PCR test in NHLS dataset

Dataset 2 (ACDIS): One record per HIV-exposed infant in ACDIS

Dataset 3 (MONARCH): One record per HIV-exposed infant in MONARCH

TOPICS

Topic	Vocabulary	URI
HIV; Routinely Collected Health Data	Africa Health Research Institute	www.ahri.org

KEYWORDS
HIV; PCR testing; routinely collected data; early infant diagnosis

Coverage

GEOGRAPHIC COVERAGE
South Africa

UNIVERSE
Dataset 1 (NHLS): Infants receiving a PCR test at a healthcare facility in the Hlabisa health sub-district.

Dataset 2 (ACDIS): HIV-exposed infants living in the AHRI demographic surveillance area

Dataset 3 (MONARCH): Infants born to women with HIV receiving antenatal care at sites participating in the MONARCH trial.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Chappell, Elizabeth	MRC Clinical Trials Unit at UCL
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OTHER PRODUCER(S)

Name	Affiliation	Role
Africa Health Research Institute		

FUNDING

Name	Abbreviation	Role
Wellcome Trust	WT	Core funding
SAPRIN	SAPRIN	

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
Nxumalo, Siyabonga	Africa Health Research Institute	SAPRIN Research Data Manager
Dube, Sweetness	Africa Health Research Institute	Data Documentation Archivist
Ehlers, Eugene	Africa Health Research Institute	Senior Software Developer

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Africa Health Research Institute	AHRI		

DDI DOCUMENT ID
DDI.Comparing.estimates.of.testing.coverage

Sampling

Sampling Procedure

Questionnaires

No content available

Data Collection

Data Collection Dates

Start	End	Cycle
2010-06-01	2016-12-04	Dataset 1 (NHLS)
2010-06-01	2016-12-04	Dataset 2 (ACDIS)
2015-07-01	2016-12-04	Dataset 3 (MONARCH)

Data Processing

No content available

Data Appraisal

No content available

File Description

Variable List

Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Content	
Cases	2254
Variable(s)	5
Structure	Type: Keys: ()
Version	
Producer	
Missing Data	

Variables

ID	NAME	LABEL	TYPE	FORMAT	QUESTION
V1	acdisid	Individual internal identifier	contin	numeric	
V2	idnumber		contin	numeric	
V3	yob		discrete	numeric	
V4	anypcr		discrete	numeric	
V5	anypcr_7w		discrete	numeric	

Comparing estimates of testing coverage - ACDIS dataset

Content	
Cases	2254
Variable(s)	4
Structure	Type: Keys: ()
Version	
Producer	
Missing Data	

Variables

ID	NAME	LABEL	TYPE	FORMAT	QUESTION
V6	idnumber		contin	numeric	
V7	yob		discrete	numeric	
V8	anypcr		discrete	numeric	
V9	anypcr_7w		discrete	numeric	

Comparing estimates of testing coverage - MONARCH - WITH ID

Content	
Cases	813
Variable(s)	5
Structure	Type: Keys: ()
Version	
Producer	
Missing Data	

Variables

ID	NAME	LABEL	TYPE	FORMAT	QUESTION
V10	BarcodeStickerId	Barcoded sticker ID number (M10.....)	discrete	character	
V11	idnumber		contin	numeric	
V12	yob		discrete	numeric	
V13	anypcr_7w		discrete	numeric	
V14	rth6wvis		discrete	numeric	

Comparing estimates of testing coverage - MONARCH

Content	
Cases	813
Variable(s)	4
Structure	Type: Keys: ()
Version	
Producer	
Missing Data	

Variables

ID	NAME	LABEL	TYPE	FORMAT	QUESTION
V15	idnumber		contin	numeric	
V16	yob		discrete	numeric	
V17	anypcr_7w		discrete	numeric	
V18	rth6wvis		discrete	numeric	

Comparing estimates of testing coverage - NHLS infants with PCR test

Content	
Cases	15234
Variable(s)	3
Structure	Type: Keys: ()
Version	
Producer	
Missing Data	

Variables

ID	NAME	LABEL	TYPE	FORMAT	QUESTION
V19	idnumber	1 id	contin	numeric	
V20	yob		discrete	numeric	
V21	anypcr_7w		discrete	numeric	

Individual internal identifier (acdisid)

File: Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Overview

Type: Continuous
Format: numeric
Width: 12
Decimals: 0
Range: 153612-179129

Valid cases: 2254
Invalid: 0
Minimum: 153612
Maximum: 179129
Mean: 168989.5
Standard deviation: 6446.8

(idnumber)

File: Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Overview

Type: Continuous
Format: numeric
Width: 9
Decimals: 0
Range: 1-2254

Valid cases: 2254
Invalid: 0
Minimum: 1
Maximum: 2254
Mean: 1127.5
Standard deviation: 650.8

(yob)

File: Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 43
Decimals: 0
Range: 1-8

Valid cases: 2254
Invalid: 0

(anypcr)

File: Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 11
Decimals: 0
Range: 0-1

Valid cases: 2254
Invalid: 0

(anypcr_7w)

File: Comparing estimates of testing coverage - ACDIS dataset - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 24
Decimals: 0
Range: 0-1

Valid cases: 2254
Invalid: 0

(idnumber)
File: Comparing estimates of testing coverage - ACDIS dataset

Overview

Type: Continuous
Format: numeric
Width: 9
Decimals: 0
Range: 1-2254

Valid cases: 2254
Invalid: 0
Minimum: 1
Maximum: 2254
Mean: 1127.5
Standard deviation: 650.8

(yob)
File: Comparing estimates of testing coverage - ACDIS dataset

Overview

Type: Discrete
Format: numeric
Width: 43
Decimals: 0
Range: 1-8

Valid cases: 2254
Invalid: 0

(anypcr)
File: Comparing estimates of testing coverage - ACDIS dataset

Overview

Type: Discrete
Format: numeric
Width: 11
Decimals: 0
Range: 0-1

Valid cases: 2254
Invalid: 0

(anypcr_7w)
File: Comparing estimates of testing coverage - ACDIS dataset

Overview

Type: Discrete
Format: numeric
Width: 24
Decimals: 0
Range: 0-1

Valid cases: 2254
Invalid: 0

Barcoded sticker ID number (M10.....) (BarcodeStickerId)
File: Comparing estimates of testing coverage - MONARCH - WITH ID

Overview

Type: Discrete
Format: character
Width: 8

Valid cases: 813
Invalid: 0

(idnumber)
File: Comparing estimates of testing coverage - MONARCH - WITH ID

Overview

Type: Continuous
Format: numeric
Width: 9
Decimals: 0
Range: 1-813

Valid cases: 813
Invalid: 0
Minimum: 1
Maximum: 813
Mean: 407
Standard deviation: 234.8

(yob)
File: Comparing estimates of testing coverage - MONARCH - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 43
Decimals: 0
Range: 1-8

Valid cases: 813
Invalid: 0

(anypcr_7w)
File: Comparing estimates of testing coverage - MONARCH - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 11
Decimals: 0
Range: 0-1

Valid cases: 813
Invalid: 0

(rth6wvis)
File: Comparing estimates of testing coverage - MONARCH - WITH ID

Overview

Type: Discrete
Format: numeric
Width: 32
Decimals: 0
Range: 0-1

Valid cases: 813
Invalid: 0

(idnumber)
File: Comparing estimates of testing coverage - MONARCH

Overview

Type: Continuous
Format: numeric
Width: 9
Decimals: 0
Range: 1-813

Valid cases: 813
Invalid: 0
Minimum: 1
Maximum: 813
Mean: 407
Standard deviation: 234.8

(yob)
File: Comparing estimates of testing coverage - MONARCH

Overview

Type: Discrete
Format: numeric
Width: 43
Decimals: 0
Range: 1-8

Valid cases: 813
Invalid: 0

(anypcr_7w)
File: Comparing estimates of testing coverage - MONARCH

Overview

Type: Discrete
Format: numeric
Width: 11
Decimals: 0
Range: 0-1

Valid cases: 813
Invalid: 0

(rth6wvis)
File: Comparing estimates of testing coverage - MONARCH

Overview

Type: Discrete
Format: numeric
Width: 32
Decimals: 0
Range: 0-1

Valid cases: 813
Invalid: 0

1 id (idnumber)

File: Comparing estimates of testing coverage - NHLS infants with PCR test

Overview

Type: Continuous
Format: numeric
Width: 10
Decimals: 0
Range: 1-17268

Valid cases: 15234
Invalid: 0
Minimum: 1
Maximum: 17268
Mean: 8599.7
Standard deviation: 4985.9

(yob)

File: Comparing estimates of testing coverage - NHLS infants with PCR test

Overview

Type: Discrete
Format: numeric
Width: 43
Decimals: 0
Range: 1-8

Valid cases: 15234
Invalid: 0

(anypcr_7w)

File: Comparing estimates of testing coverage - NHLS infants with PCR test

Overview

Type: Discrete
Format: numeric
Width: 24
Decimals: 0
Range: 0-1

Valid cases: 15234
Invalid: 0

Documentation

Technical documents

DDI:Comparing estimates of testing coverage

Title	DDI:Comparing estimates of testing coverage
Author(s)	Sweetness H Dube
Date	09/07/2021
Country	South Africa
Language	English
Filename	Comparing.estimates.of.testing.coverage.pdf