

# Package ‘cancerscreening’

April 14, 2024

**Title** Streamline Access to Cancer Screening Data

**Version** 1.1.0

**Description** Retrieve cancer screening data for cervical, breast and colorectal cancers from the Kenya Health Information System <<https://hiskenya.org>> in a consistent way.

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**URL** <https://cancerscreening.damurka.com>,  
<https://github.com/damurka/cancerscreening>

**BugReports** <https://github.com/damurka/cancerscreening/issues>

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## R topics documented:

cancerscreening-configuration . . . . .	2
get_analytics_formatted . . . . .	3
get_breast_cbe . . . . .	5

get_breast_mammogram . . . . .	6
get_breast_ultrasound . . . . .	7
get_cervical_hiv_screened . . . . .	9
get_cervical_positive . . . . .	10
get_cervical_screened . . . . .	11
get_cervical_treated . . . . .	13
get_colorectal_colonoscopy . . . . .	14
get_colorectal_fobt . . . . .	15
get_data_elements_metadata . . . . .	16
get_data_sets_formatted . . . . .	17
get_filtered_population . . . . .	18
get_lab_bone_marrow . . . . .	19
get_lab_fluid_cytology . . . . .	20
get_lab_fna . . . . .	22
get_lab_smears . . . . .	23
get_lab_tissue_histology . . . . .	24
get_organisation_units_metadata . . . . .	25
target_population . . . . .	26
<b>Index</b>	<b>29</b>

---

cancerscreening-configuration  
*cancerscreening configuration*

---

## Description

Some aspects of cancerscreening behaviour can be controlled via an option.

## Usage

```
with_cancerscreening_quiet(code)
```

```
local_cancerscreening_quiet(env = parent.frame())
```

## Arguments

code	Code to execute quietly
env	The environment to use for scoping

## Value

No return value, called for side effects

No return value, called for side effects

No return value, called for side effects

## Messages

The `cancerscreening_quiet` option can be used to suppress messages from `cancerscreening`. By default, `cancerscreening` always messages, i.e. it is *not* quiet.

set `cancerscreening_quiet` to `TRUE` to suppress message, by one of these means, in order of decreasing scope:

- Put `options(cancerscreening_quiet = TRUE)` in the start-up file, such as `.Rprofile`, or in your R script
- Use `local_cancerscreening_quiet()` to silence `cancerscreening` in a specific scope
- Use `with_cancerscreening_quite` to run small bit of code silently

`local_cancerscreening_quiet` and `with_cancerscreening` follow the conventions of the `withr` package (<https://withr.r-lib.org>).

## Examples

```
# message: "The credentials have been set."
khis_cred(username = 'username', password = 'password')

# suppress messages for a small amount of code
with_cancerscreening_quiet(
  khis_cred(username = 'username', password = 'password')
)
# message: "The credentials have been set."
khis_cred(username = 'username', password = 'password')

# suppress messages for a in a specific scope
local_cancerscreening_quiet()

# no message
khis_cred(username = 'username', password = 'password')

# clear credentials
khis_cred_clear()
```

---

get\_analytics\_formatted

*Retrieves Analytics Table Data from KHIS*

---

## Description

`get_analytics_formatted()` fetches data from the KHIS analytics data tables for a given period and data element(s), without performing any aggregation.

**Usage**

```
get_analytics_formatted(  
  element_ids,  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

**Arguments**

<code>element_ids</code>	A vector of data element IDs for which to retrieve data. Required.
<code>start_date</code>	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
<code>end_date</code>	The ending date for data retrieval (default is the current date).
<code>level</code>	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
<code>organisations</code>	A list of organization units ids to be filtered.
<code>...</code>	Other options that can be passed onto KHIS API.

**Details**

- Retrieves data directly from KHIS analytics tables.
- Supports optional arguments for providing organization lists, data elements, and categories.
- Allows specifying KHIS session objects, retry attempts, and logging verbosity.

**Value**

A tibble with detailed information, including:

- Geographical identifiers (country, county, subcounty, ward, facility, depending on level)
- Reporting period (month, year, fiscal year)
- Data element names
- Category options
- Reported values

**See Also**

- [get\\_organisation\\_units\\_metadata\(\)](#) for getting the organisations units
- [get\\_data\\_elements\\_metadata\(\)](#) for retrieving the data elements

**Examples**

```
# Clinical Breast Examination data elements
# XEX93uLsAm2 = CBE Abnormal
# cXe64Yk0QMY = CBE Normal
element_id = c('cXe64Yk0QMY', 'XEX93uLsAm2')

# Download data from February 2023 to current date
data <- get_analytics(element_ids = element_id,
                     start_date = '2023-02-01')

data
```

---

get_breast_cbe	<i>Retrieves Data for Clinical Breast Examinations (CBE) Conducted</i>
----------------	--

---

**Description**

get\_breast\_cbe() retrieves data for CBE conducted within a specified period from the KHIS API server.

**Usage**

```
get_breast_cbe(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

**Arguments**

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing data for CBE conducted with the following columns:

- country - Name of the country
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.

- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- age\_group - The age group category of the report (25-34, 35-39, 40-55, 56-74, or 75+).
- category - Additional category if available.
- element - The data element.
- value - The number reported.

### Examples

```
# Download data from February 2023 to current date
cbe_data <- get_breast_cbe(start_date = '2023-02-01')
cbe_data
```

---

get\_breast\_mammogram *Retrieves Data for Mammograms Conducted*

---

### Description

get\_breast\_mammogram() retrieves data for mammograms conducted within a specified period from the KHIS API server.

### Usage

```
get_breast_mammogram(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

### Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing data for mammograms conducted with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report (25-34, 35-39, 40-55, 56-74, or 75+).
- category2 - Additional category if available.
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
mammogram_data <- get_breast_mammogram(start_date = '2023-02-01')
mammogram_data
```

---

get\_breast\_ultrasound *Retrieves Data for Breast Ultrasound Conducted*

---

**Description**

get\_breast\_ultrasound() retrieves data for breast ultrasounds conducted within a specified period from the KHIS API server.

**Usage**

```
get_breast_ultrasound(  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

**Arguments**

<code>start_date</code>	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
<code>end_date</code>	The ending date for data retrieval (default is the current date).
<code>level</code>	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
<code>organisations</code>	A list of organization units ids to be filtered.
<code>...</code>	Other options that can be passed onto KHIS API.

**Value**

A tibble containing data for breast ultrasound conducted with the following columns:

- `country` - Name of the country.
- `county` - Name of the county. Optional if the level is county, subcounty, ward or facility.
- `subcounty` - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- `ward` - Name of the ward. Optional if the level is ward or facility.
- `facility` - Name of the health facility. Optional if the level facility.
- `period` - The month and year of the data.
- `fiscal_year` - The financial year of the report(July-June Cycle).
- `year` - The calendar year of the report.
- `month` - The month name of the report.
- `category` - The age group category of the report (25-34, 35-39, 40-55, 56-74, or 75+).
- `category2` - Additional category if available.
- `element` - The data element.
- `value` - The number reported.

**Examples**

```
# Download data from February 2023 to current date
ultrasound_data <- get_breast_ultrasound(start_date = '2023-02-01')
ultrasound_data
```

---

`get_cervical_hiv_screened`*Retrieves Cervical Cancer Screening Data on HIV Positive Women*

---

## Description

`get_cervical_hiv_screened()` retrieves cervical cancer screening and positivity data for HIV positive women for a specified period from the KHIS API server.

## Usage

```
get_cervical_hiv_screened(  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

## Arguments

<code>start_date</code>	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
<code>end_date</code>	The ending date for data retrieval (default is the current date).
<code>level</code>	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
<code>organisations</code>	A list of organization units ids to be filtered.
<code>...</code>	Other options that can be passed onto KHIS API.

## Value

A tibble containing cervical cancer screening data on HIV positive women with the following columns:

- `country` - Name of the country.
- `county` - Name of the county. Optional if the level is county, subcounty, ward or facility.
- `subcounty` - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- `ward` - Name of the ward. Optional if the level is ward or facility.
- `facility` - Name of the health facility. Optional if the level facility.
- `period` - The month and year of the data.
- `fiscal_year` - The financial year of the report(July-June Cycle).
- `year` - The calendar year of the report.
- `month` - The month name of the report.
- `category` - The age group category of the report (<25, 25-49, 50+).

- category2 - Additional category if available.
- element - The data element (HPV, VIA or Pap Smear).
- source - The source report (MOH 711 or MOH 745).
- value - The number reported.

## Examples

```
# Download data from February 2023 to current date
screened <- get_cervical_hiv_screened(start_date = '2023-02-01')
screened
```

---

get\_cervical\_positive *Retrieves Cervical Cancer Screening Data with Positive Results*

---

## Description

get\_cervical\_positive() retrieves cervical cancer screening data with positive results for a specified period from the KHIS API server.

## Usage

```
get_cervical_positive(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

## Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing cervical cancer screening data with positive results with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report (<25, 25-49, 50+).
- category2 - Additional category if available.
- element - The data element (HPV, VIA or Pap Smear).
- source - The source report (MOH 711 or MOH 745).
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
positive <- get_cervical_positive(start_date = '2023-02-01')
positive
```

---

get\_cervical\_screened *Retrieves Cervical Cancer Screening Data*

---

**Description**

get\_cervical\_screened() retrieves cervical cancer screening data for a specified period from the KHIS API server.

**Usage**

```
get_cervical_screened(  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

**Arguments**

<code>start_date</code>	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
<code>end_date</code>	The ending date for data retrieval (default is the current date).
<code>level</code>	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
<code>organisations</code>	A list of organization units ids to be filtered.
<code>...</code>	Other options that can be passed onto KHIS API.

**Value**

A tibble containing cervical cancer screening data with the following columns:

- `country` - Name of the country.
- `county` - Name of the county. Optional if the level is county, subcounty, ward or facility.
- `subcounty` - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- `ward` - Name of the ward. Optional if the level is ward or facility.
- `facility` - Name of the health facility. Optional if the level facility.
- `period` - The month and year of the data.
- `fiscal_year` - The financial year of the report(July-June Cycle).
- `year` - The calendar year of the report.
- `month` - The month name of the report.
- `category` - The age group category of the report (<25, 25-49, 50+).
- `category2` - Additional category if available.
- `element` - The data element (HPV, VIA or Pap Smear).
- `source` - The source report (MOH 711 or MOH 745).
- `value` - The number reported.

**Examples**

```
# Download data from February 2023 to current date
screened <- get_cervical_screened(start_date = '2023-02-01')
screened
```

---

get\_cervical\_treated *Retrieves Cervical Cancer Precancerous Treatment Data*

---

### Description

get\_cervical\_treated() retrieves cervical cancer precancerous treatment data for a specified period from the KHIS API server.

### Usage

```
get_cervical_treated(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

### Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

### Value

A tibble containing cervical cancer precancerous treatment data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report (<25, 25-49, 50+).
- category2 - Additional category if available.
- element - The data element (HPV, VIA or Pap Smear).
- source - The source report (MOH 711 or MOH 745).
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
treated <- get_cervical_treated(start_date = '2023-02-01')
treated
```

---

```
get_colorectal_colonoscopy
```

*Retrieves Data for Colorectal Screening using Colonoscopy*

---

**Description**

get\_colorectal\_colonoscopy() retrieves data for colorectal screening using colonoscopy within a specified period from the KHIS API server.

**Usage**

```
get_colorectal_colonoscopy(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

**Arguments**

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing data for colorectal screening with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.

- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report (45-54, 55-64, or 65-75).
- category2 - Additional category if available.
- element - The data element.
- value - The number reported.

## Examples

```
# Download data from February 2023 to current date
data <- get_colorectal_colonoscopy(start_date = '2023-02-01')
data
```

---

get\_colorectal\_fobt     *Retrieves Data for Colorectal Screening Using FOBT*

---

## Description

get\_colorectal\_fobt() retrieves data for colorectal screening using FOBT within a specified period from the KHIS API server.

## Usage

```
get_colorectal_fobt(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

## Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing data for colorectal screening with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report (45-54, 55-64, or 65-75).
- category2 - Additional category if available.
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
data <- get_colorectal_fobt(start_date = '2023-02-01')
data
```

---

```
get_data_elements_metadata
```

*Get Data Elements Metadata*

---

**Description**

get\_data\_elements\_metadata() fetches data elements metadata from the KHIS API server, including their IDs and names.

**Usage**

```
get_data_elements_metadata(element_ids)
```

**Arguments**

element\_ids      The data element identifiers whose details being retrieved

**Value**

A tibble containing the following columns:

- element\_id - The unique identifier for the data element.
- element - The name of the data element.
- category - The category options for the elements
- category\_id - The unique identifier for the category options

**Examples**

```
# Fetch the data element metadata for particular element id
elements <- get_data_elements_metadata('htFuvGJR1X')
elements
```

---

```
get_data_sets_formatted
```

*Retrieves Data Set Reporting Rate Metrics*

---

**Description**

get\_data\_sets\_formatted() fetches the data set reporting metrics. The metric can be REPORTING\_RATE, REPORTING\_RATE\_ON\_TIME, ACTUAL\_REPORTS, ACTUAL\_REPORTS\_ON\_TIME, EXPECTED\_REPORTS.

**Usage**

```
get_data_sets_formatted(
  dataset_ids,
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

**Arguments**

dataset_ids	A vector of data sets IDs for which to retrieve data. Required.
start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble with detailed information, including:

- Geographical identifiers (country, county, subcounty, ward, facility, depending on level)
- Reporting period (month, year, fiscal year)
- The reporting metric can be REPORTING\_RATE, REPORTING\_RATE\_ON\_TIME, ACTUAL\_REPORTS, ACTUAL\_REPORTS\_ON\_TIME, EXPECTED\_REPORTS.

**See Also**

- [get\\_organisation\\_units\\_metadata\(\)](#) for getting the organisations units
- [get\\_data\\_sets\(\)](#) for retrieving the data sets

**Examples**

```
# The MoH 745 Cancer Screening Program Monthly Summary Form
dataset_id = c('WWH5hbCmvND')

# Download data from February 2023 to current date
data <- get_data_sets_formatted(element_ids = element_id,
                               start_date = '2023-02-01')

data
```

---

get\_filtered\_population

*Filters the Population*

---

**Description**

get\_filtered\_population() filters the population based on age and level and projects the population base on the year provided

**Usage**

```
get_filtered_population(
  year,
  min_age,
  max_age,
  modifier = 1,
  level = c("country", "county", "subcounty"),
  pop_sex = c("female", "male", "both"),
  rate = 0.022
)
```

**Arguments**

year	The year to project the population
min_age	The minimum age to include in the filtered data
max_age	The maximum age to include in the filtered data
modifier	A multiplier that affect the population projection. Default 1
level	The desired level of the organization unit hierarchy to retrieve data for: "country", "county" or "subcounty".
pop_sex	The desired population sex: "male", "female" (default), "both"
rate	The population growth

**Value**

A tibble containing the target population

**Examples**

```
# Get the female population in 2022 aged 25-49 years
filtered_population <- get_filtered_population(2022, 25, 49, pop_sex = 'female')
filtered_population

# Get 5% male population in 2022 aged 40-75 years
filtered_population <- get_filtered_population(2022, 40, 75, modifier = 0.05, pop_sex = 'male')
filtered_population
```

---

get\_lab\_bone\_marrow *Retrieves the Bone Marrow Laboratory Data*

---

**Description**

get\_lab\_bone\_marrow() retrieves bone marrow lab data for a specified period from the KHIS API server.

**Usage**

```
get_lab_bone_marrow(  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

**Arguments**

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing bone marrow lab data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
data <- get_lab_bone_marrow(start_date = '2023-02-01')
data
```

---

```
get_lab_fluid_cytology
```

*Retrieves the Fluid Cytology Data*

---

**Description**

get\_lab\_fluid\_cytology() retrieves fluid cytology lab data for a specified period from the KHIS API server.

**Usage**

```
get_lab_fluid_cytology(  
  start_date,  
  end_date = NULL,  
  level = c("country", "county", "subcounty", "ward", "facility"),  
  organisations = NULL,  
  ...  
)
```

**Arguments**

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing fluid cytology lab data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date  
data <- get_lab_fluid_cytology(start_date = '2023-02-01')  
data
```

---

get_lab_fna	<i>Retrieves the Fine-Needle Aspiration Laboratory Data</i>
-------------	---

---

### Description

get\_lab\_fna() retrieves fine-needle aspiration lab data for a specified period from the KHIS API server.

### Usage

```
get_lab_fna(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

### Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

### Value

A tibble containing fine-needle aspiration lab data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
data <- get_lab_fna(start_date = '2023-02-01')
data
```

---

get_lab_smears	<i>Retrieves the Cytology Smears Laboratory Data</i>
----------------	--

---

**Description**

get\_lab\_smears() retrieves cytology smears lab data for a specified period from the KHIS API server.

**Usage**

```
get_lab_smears(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

**Arguments**

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing cytology smears lab data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.

- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report
- element - The data element.
- value - The number reported.

## Examples

```
# Download data from February 2023 to current date
data <- get_lab_smears(start_date = '2023-02-01')
data
```

---

```
get_lab_tissue_histology
```

*Retrieves the Tissue Histology Laboratory Data*

---

## Description

get\_lab\_tissue\_histology() retrieves tissue histology lab data for a specified period from the KHIS API server.

## Usage

```
get_lab_tissue_histology(
  start_date,
  end_date = NULL,
  level = c("country", "county", "subcounty", "ward", "facility"),
  organisations = NULL,
  ...
)
```

## Arguments

start_date	The start date to retrieve data. It is required and in the format YYYY-MM-dd.
end_date	The ending date for data retrieval (default is the current date).
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".
organisations	A list of organization units ids to be filtered.
...	Other options that can be passed onto KHIS API.

**Value**

A tibble containing tissue histology lab data with the following columns:

- country - Name of the country.
- county - Name of the county. Optional if the level is county, subcounty, ward or facility.
- subcounty - Name of the subcounty. Optional if the level is subcounty, ward or facility.
- ward - Name of the ward. Optional if the level is ward or facility.
- facility - Name of the health facility. Optional if the level facility.
- period - The month and year of the data.
- fiscal\_year- The financial year of the report(July-June Cycle).
- year - The calendar year of the report.
- month - The month name of the report.
- category - The age group category of the report
- element - The data element.
- value - The number reported.

**Examples**

```
# Download data from February 2023 to current date
data <- get_lab_tissue_histology(start_date = '2023-02-01')
data
```

---

```
get_organisation_units_metadata
  Get Organisation Units Metadata
```

---

**Description**

get\_organisation\_units\_metadata() fetches organisation units metadata from the KHIS API server.

**Usage**

```
get_organisation_units_metadata(
  org_ids = NULL,
  level = c("country", "county", "subcounty", "ward", "facility")
)
```

**Arguments**

org_ids	The organisation identifiers whose details being retrieved
level	The desired data granularity: "country" (the default), "county", "subcounty", "ward", or "facility".

**Value**

A tibble containing the following columns:

- id - Organisation identifier that uniquely identifies the organisation by level
- country - Name of the country
- county - Name of the county.
- subcounty - Name of the subcounty.
- ward - Name of the ward.
- facility - Name of the health facility.

**Examples**

```
# Fetch all the organisation units metadata
organisations <- get_organisation_units_metadata()
organisations
```

---

target_population	<i>Screening Target Populations</i>
-------------------	-------------------------------------

---

**Description**

These functions subsets the Kenyan population to the desirable screening population.

**Usage**

```
get_cervical_target_population(  
  year,  
  level = c("country", "county", "subcounty")  
)  
  
get_breast_cbe_target_population(  
  year,  
  level = c("country", "county", "subcounty")  
)  
  
get_breast_mammogram_target_population(  
  year,  
  level = c("country", "county", "subcounty")  
)  
  
get_colorectal_target_population(  
  year,  
  level = c("country", "county", "subcounty")  
)
```

**Arguments**

year	Year for which to estimate population.
level	The desired level of the organization unit hierarchy to retrieve data for: "country" (default) , "county" or "subcounty".

**Details**

`get_cervical_target_population()` subsets the target population for cervical cancer screening: females aged between 25 years and 50 years

`get_breast_cbe_target_population()` subsets the target population for clinical breast examination: females aged between 25 years and 74 years

`get_breast_mammogram_target_population()` subsets the target population for breast cancer screening through mammography: females aged between 40 years to 74 years

`get_colorectal_target_population()` subsets the target population for colorectal cancer screening: males and females aged between 45 years to 75 years

These target populations are guided by the [Kenya National Cancer Screening Guidelines 2018](#). The population projection for counties and the national level are calculated based on population growth 2.2% obtained from the [Kenya National Bureau of Statistics](#). The annual targets follows the guidance of screening guidelines and for cervical cancer it is also guided by the WHO publication 'Planning and implementing cervical cancer prevention programs: A manual for managers.'

**Value**

A tibble containing the target screening population

- county - name of the county. Optional if the level is county or subcounty
- subcounty - name of the county. Optional if the level if subcounty
- target - number to be screened

A tibble containing the target screening population

A tibble containing the target screening population

A tibble containing the target screening population

**Examples**

```
# Get the country projection for cervical cancer screening for the year 2024
target_population <- get_cervical_target_population(2024)
target_population

# Get the projection for cervical cancer screening for 2022 by county
target_population <- get_cervical_target_population(2022, level = 'county')
target_population

# Get the projection for CBE for 2022 by county
target_population <- get_breast_cbe_target_population(2022, level = 'county')
target_population
```

```
# Get the country projection of women to perform mammogram for the year 2024
target_population <- get_breast_mammogram_target_population(2024)
target_population

# Get the country projection colorectal cancer screening for the year 2024
target_population <- get_colorectal_target_population(2024)
target_population
```

# Index

cancerscreening-configuration, [2](#)

[get\\_analytics\\_formatted](#), [3](#)

[get\\_breast\\_cbe](#), [5](#)

[get\\_breast\\_cbe\\_target\\_population](#)  
([target\\_population](#)), [26](#)

[get\\_breast\\_mammogram](#), [6](#)

[get\\_breast\\_mammogram\\_target\\_population](#)  
([target\\_population](#)), [26](#)

[get\\_breast\\_ultrasound](#), [7](#)

[get\\_cervical\\_hiv\\_screened](#), [9](#)

[get\\_cervical\\_positive](#), [10](#)

[get\\_cervical\\_screened](#), [11](#)

[get\\_cervical\\_target\\_population](#)  
([target\\_population](#)), [26](#)

[get\\_cervical\\_treated](#), [13](#)

[get\\_colorectal\\_colonoscopy](#), [14](#)

[get\\_colorectal\\_fobt](#), [15](#)

[get\\_colorectal\\_target\\_population](#)  
([target\\_population](#)), [26](#)

[get\\_data\\_elements\\_metadata](#), [16](#)

[get\\_data\\_elements\\_metadata\(\)](#), [4](#)

[get\\_data\\_sets\(\)](#), [18](#)

[get\\_data\\_sets\\_formatted](#), [17](#)

[get\\_filtered\\_population](#), [18](#)

[get\\_lab\\_bone\\_marrow](#), [19](#)

[get\\_lab\\_fluid\\_cytology](#), [20](#)

[get\\_lab\\_fna](#), [22](#)

[get\\_lab\\_smears](#), [23](#)

[get\\_lab\\_tissue\\_histology](#), [24](#)

[get\\_organisation\\_units\\_metadata](#), [25](#)

[get\\_organisation\\_units\\_metadata\(\)](#), [4](#),  
[18](#)

[local\\_cancerscreening\\_quiet](#)  
([cancerscreening-configuration](#)),  
[2](#)

[target\\_population](#), [26](#)

[with\\_cancerscreening\\_quiet](#)  
([cancerscreening-configuration](#)),  
[2](#)