

Transmission and case projections: 2017 to 2050

Data and analysis tool (GUI)

Gambiense Human African Trypanosomiasis (gHAT or sleeping sickness) disease transmission model - **data and results**

User Guide

Contents

[Quick guide to getting started](#)

[Definitions](#)

[Results tabs](#)


- ❖ [Predicted year of elimination](#)
- ❖ [Preferred intervention strategy](#)
- ❖ [Screening](#)
- ❖ [Detections & new infections](#)

ABOUT THIS GUIDE

DESCRIPTION	gHAT transmission and case projections
SOURCE	Projections from Warwick gHAT model fitted to WHO HAT Atlas case data
DATE ISSUED	June 2020
LAST UPDATED	April 2022
SPATIAL COVERAGE	Democratic Republic of Congo, provinces and health zones
YEARS(S)	Fitting to 2000 to 2016 and projections from 2017 to 2050
STATUS	Completed
CREATOR	Huang et al, University of Warwick
USAGE	Open access
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Quick guide to getting started

- 1) Go to: <https://hatmepp.warwick.ac.uk/projections/v2/>
(We recommend you use Google Chrome, Microsoft Edge or Firefox as your browser to get the best experience)
- 2) Choose your **province** and **health zone** from the drop-down boxes. This version of the GUI is only for DRC so the country cannot be changed.

	Country: Dem Rep Congo	Aggregate health zones by: Provinces pre 2015	Province: Bandundu	Health zone: Bandundu
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Note that health zones will be aggregated by pre-2015 provinces as the default.

Note that province-level results are an aggregation of the health-zone level results.

- 3) The table immediately below will auto generate based on your entries, to show the proportion of people assumed to be screened, the “preferred strategy” to achieve elimination by 2030, and predicted year of elimination.



Dem Rep Congo: Bandundu Province: Bandundu Health zone	
Information	
DRC population (2017)	81,339,988
Bandundu population (est 2015)	191,294
Screening level (mean/max)	39.32%/55.15%
Vector control	None
Predicted year of EOT (median [95% prediction interval])	2025 [2021, 2034]
Preferred strategy to achieve EOT by 2030 with prob >= 0.90	Max AS

- 4) A number of [results tabs](#) can be found under the maps and table. **Charts** under each results tab will auto-generate based on your province or health zone selection.
- 5) You can **download charts**, by clicking on ‘Save Plot’ (bottom left of each screen).

Definitions

<i>Terminology</i>	<i>Definition</i>
<i>Assumed (max)</i>	Assumed number of people screened in the projections in the selected province or health zone under a maximum level of active screening (see <i>Max AS below</i>)
<i>Assumed (mean)</i>	Assumed number of people screened in the projections in the selected province or health zone under a mean level of active screening (see <i>Mean AS below</i>)
<i>Fitted</i>	Model outputs have been fitted to actual case data from the WHO HAT Atlas
<i>Mean AS</i>	The proportion of people screened is equal to the mean number screened during 2012–2016
<i>Max AS</i>	The coverage is the maximum number of people screened during 2000–2016
<i>No inference performed</i>	Insufficient data to provide predictions
<i>Observed</i>	Aggregate case data from the WHO HAT Atlas
<i>PS (Passive Screening)</i>	Passive surveillance is in place under all strategies
<i>VC (Vector Control)</i>	Vector control (VC) is simulated assuming a % tsetse density reduction.

You can also refer to the main [Glossary](#) for a description of commonly used terms and acronyms associated with the gHAT projects.

Results tabs

[Predicted Elimination](#) [Preferred Strategy](#) [Screening](#) [Detections & new Infections](#)

Predicted elimination

Predicted Elimination Preferred Strategy Screening Data Active Detections Passive Detections New Infections

The **Predicted Elimination** results tab will show you the model predictions for the **year of elimination of transmission** of gHAT for each health zone, resulting from different levels of active screening (mean and maximum) and vector control (none, 60%, 80% and 90%).

Active screening level (AS)

- Mean
- Maximum

Amend the **active screening level** and **vector control** selections to see the impact on the year of elimination of transmission (EOT), shown on the map via colour coding, where there is sufficient data.

Dark orange to dark red health zones indicate a predicted elimination year post 2030, therefore requiring more intensive interventions (maximum screening and/or vector control) to reach EOT by 2030 (see illustrations below).

Vector control (VC), starting in 2020 (if not started previously)

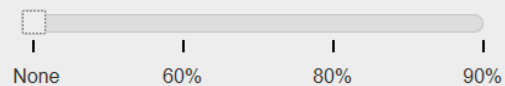
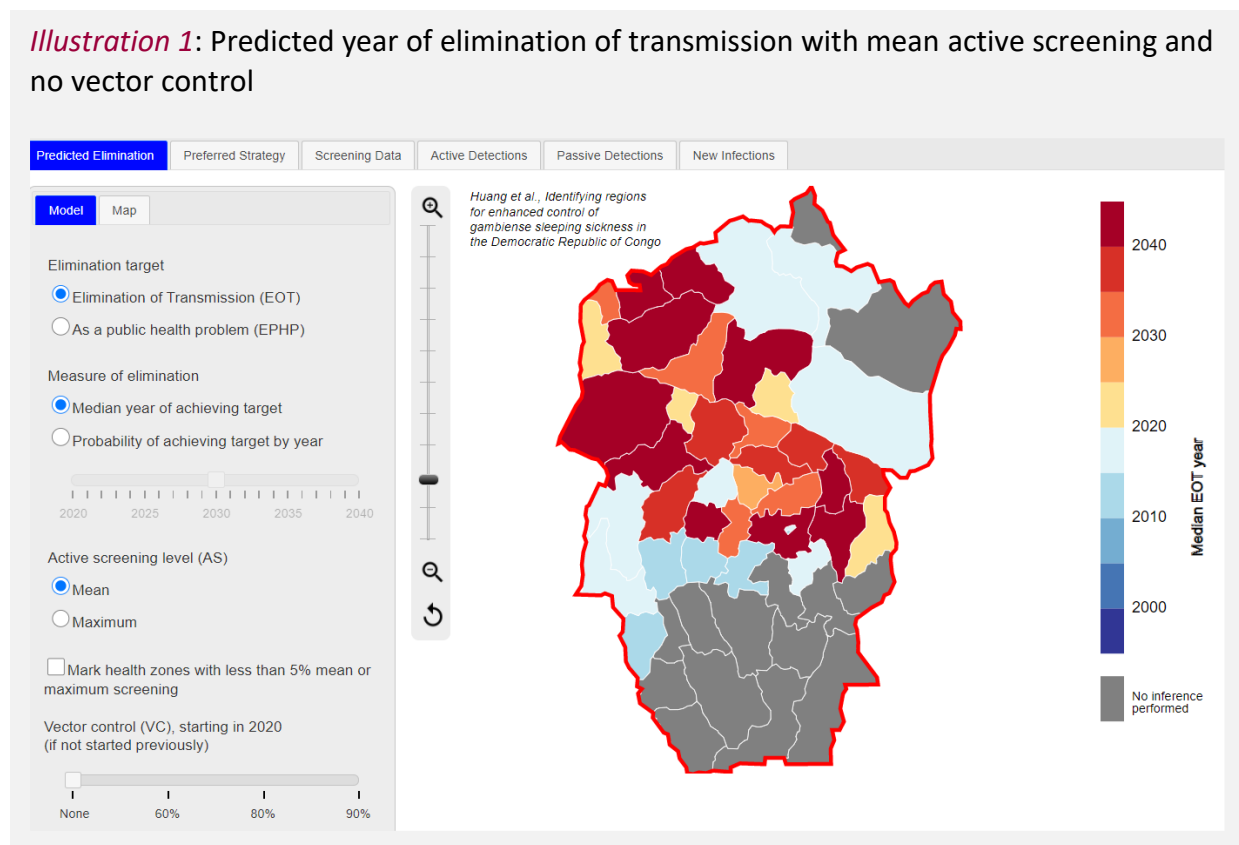


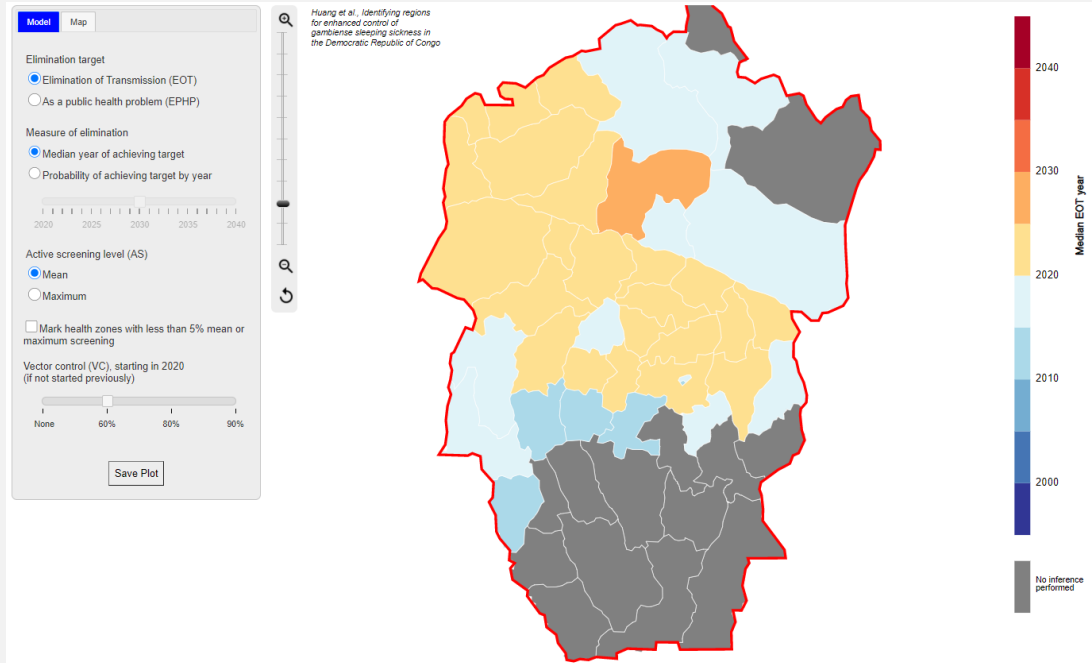
Illustration 1: Predicted year of elimination of transmission with mean active screening and no vector control



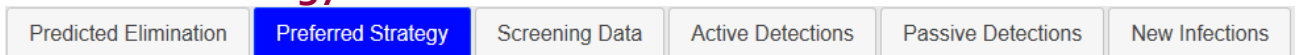


Note: the map will be defaulted to whole-country view. To show one province only click on the map sub-tab.

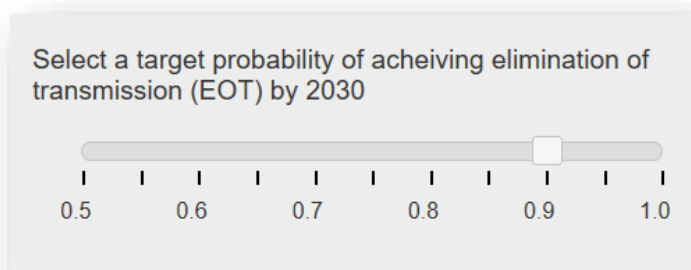
Illustration 2: Predicted year of elimination of transmission with mean active screening and 60% (coverage) vector control



Preferred strategy



The **Preferred Strategy** results tab will display the least ambitious intervention strategy recommended through the model predictions for achieving elimination of transmission (EOT) by 2030 for each health zone. The map is colour coded by preferred strategy type (mean AS, max AS or mean AS + VC – see [definitions](#)) for each health zone, where there is sufficient data. The map indicates which health zones are in need of intensified interventions to achieved EOT by 2030, with vector control in addition to active screening.



The preferred strategy target probability default is 90% (predicted 90% chance of achieving EOT by 2030). **Amend** this, as required, depending on what level of certainty you are aiming for. The map will show the recommended intervention strategies required to achieve this (see illustrations below).

Illustration 3: Intervention strategies for predicted 90% chance of EOT by 2030

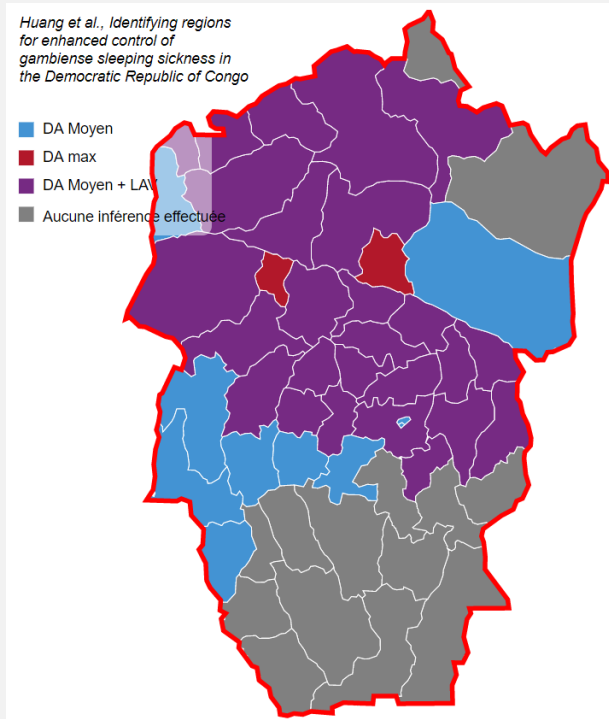
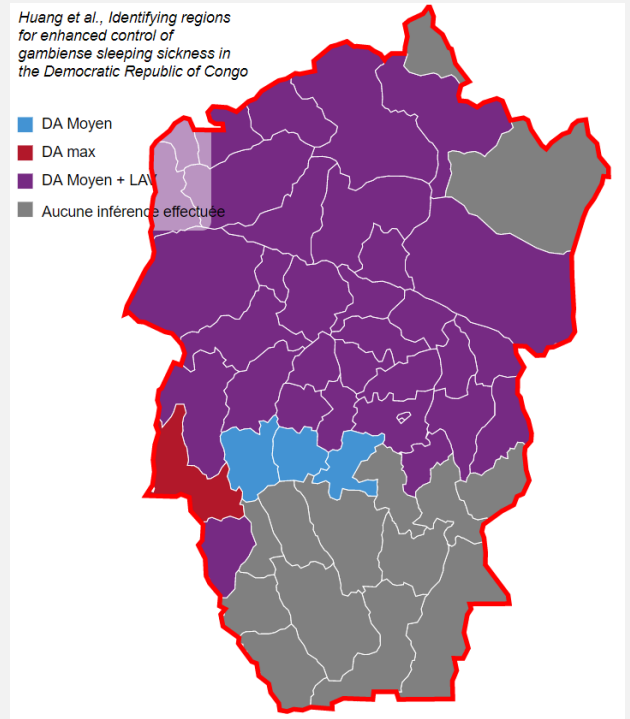


Illustration 4: Intervention strategies for predicted 100% chance of EOT by 2030

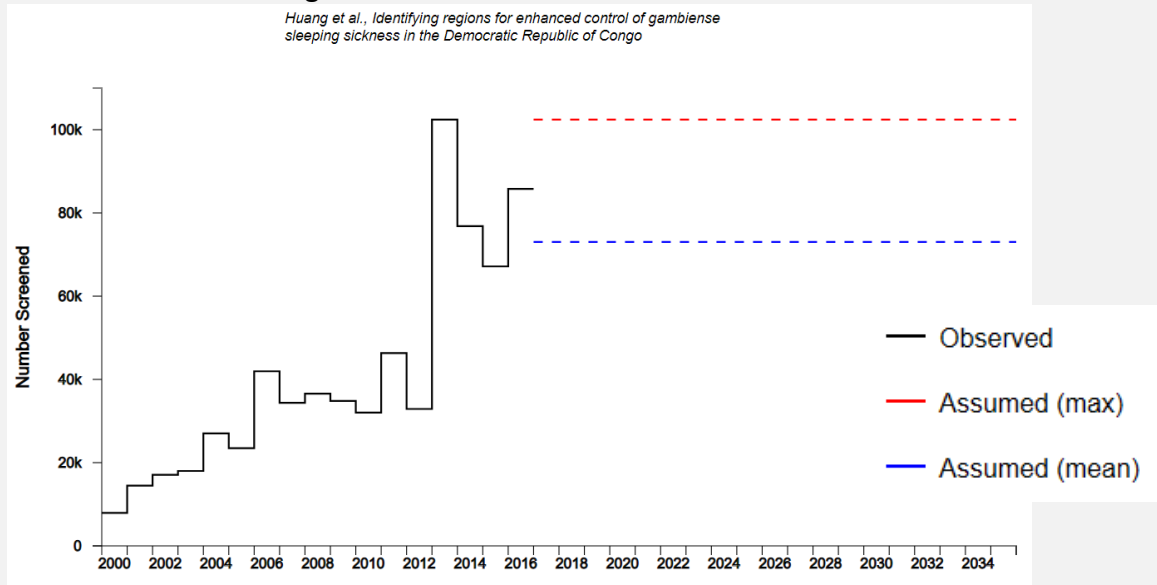


Screening

Predicted Elimination	Preferred Strategy	Screening Data	Active Detections	Passive Detections	New Infections
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The **Screening** results tab provides a chart showing you (i) the number of people actively screened by year from 2000-2016 (i.e. the “observed” level in the data) and (ii) the assumed number of people that are screened in the selected province or health zone under a mean level of active screening compared to a maximum level of active screening (see [definitions](#) for mean AS and max AS) from 2017 onwards.

Illustration 5: Assumed number of people to be screened under a mean and maximum level of active screening



Detections & new infections

Predicted Elimination	Preferred Strategy	Screening Data	Active Detections	Passive Detections	New Infections
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Display Interventions

- Mean AS + no VC
- Mean AS + 60% VC
- Mean AS + 80% VC
- Mean AS + 90% VC
- Max AS + no VC
- Max AS + 60% VC
- Max AS + 80% VC
- Max AS + 90% VC

The final three results tabs provide charts to show you the predicted active and passive case reporting by year, by health zone, as well as new infections that wouldn't be picked up in the data, viewable for each intervention strategy (Display Interventions).

The list of Display Interventions (see opposite) is a tick box function to allow you to select and compare the results based on different intervention strategies. The tick box will default to Mean AS + no VC, regardless of preferred strategy.

Tips:

- Amend the time period as required (defaulted to 2000 to 2035, but this can be scaled to any period between 2000 and 2050).

- Hover on the results for the year you are interested in to view an information box confirming the predicted highest, lowest and median number of cases within the range.

Example:

1. Selected Province: Bandundu province and Health zone: Kwamouth from the top bar (or click on the health zone on the DRC map).
2. Click on the “Active Detections” tab. The range will be from 2000-2035 by default.
3. Select 2012 in the “From” dropdown list on the left hand side and 2030 in the “To” dropdown list.
4. Show all four strategies from the article by additionally selecting Mean AS + 80% VC, Max AS + no VC, and Max AS + 80% VC in the right hand side legend.
5. You can save this image by clicking “Save Plot” on the left hand side.
6. To view predictions for Passive Detections and New Infections with these same settings, simply choose the corresponding tab. The selected strategies and data range will remain the same until you choose a new health zone.

Illustration 6: Example results – predicted active detections and passive detections under four intervention strategies from 2012 to 2030

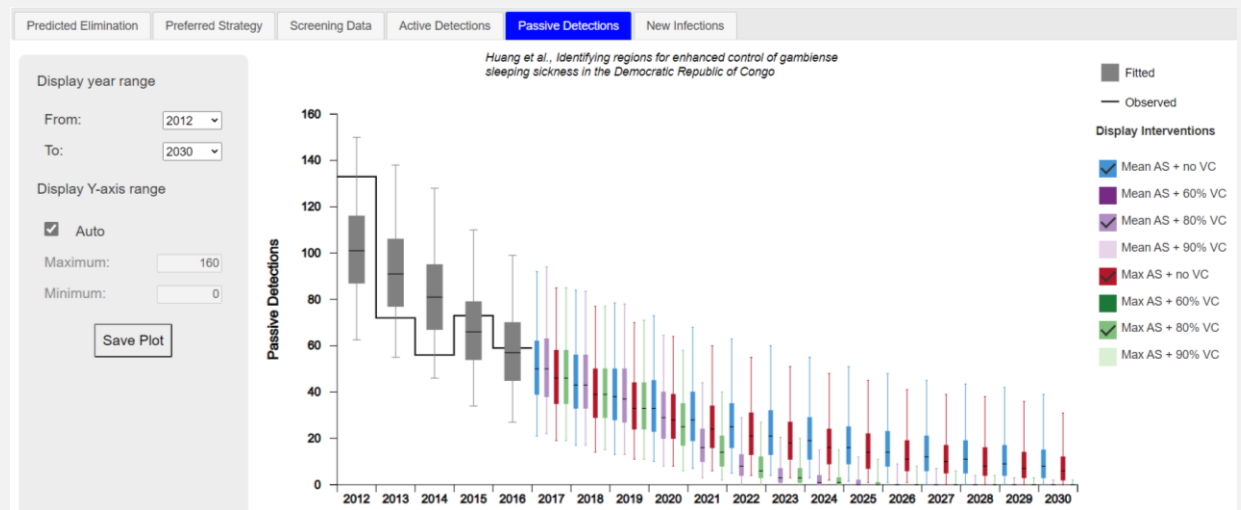
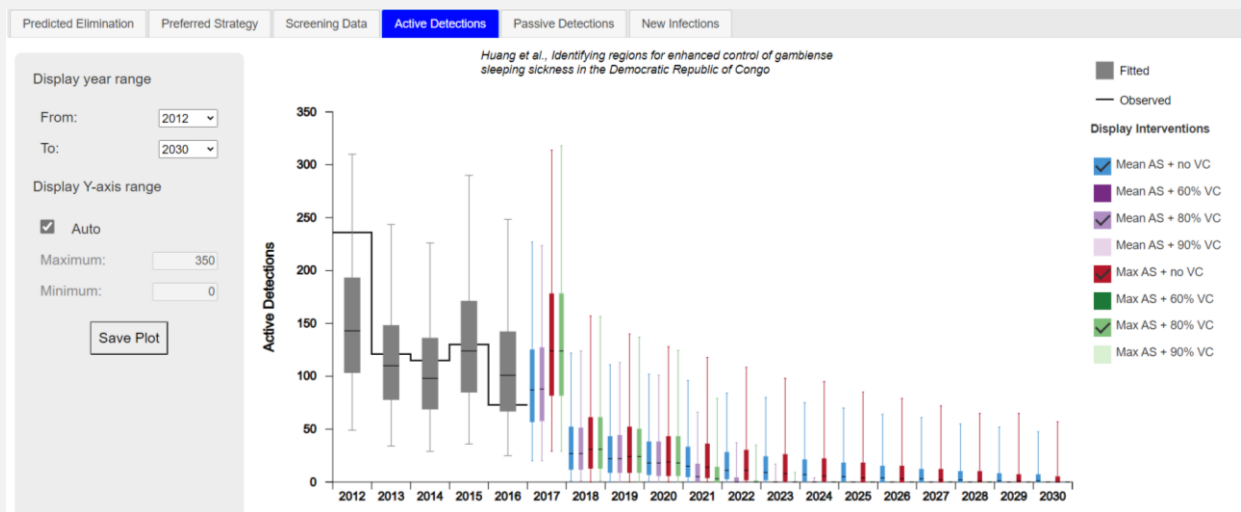


Illustration 7: Example results – predicted new infections under four intervention strategies from 2012 to 2030

