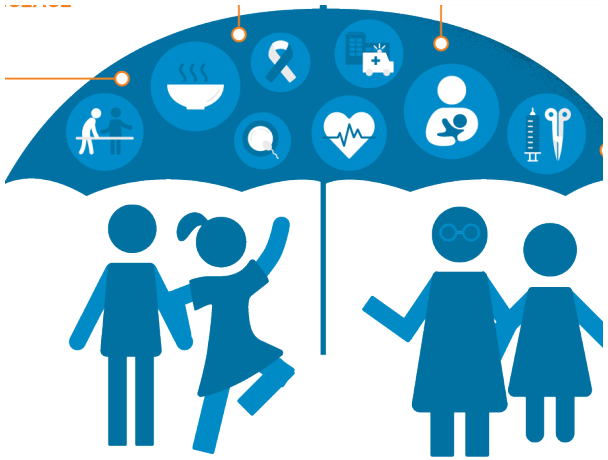
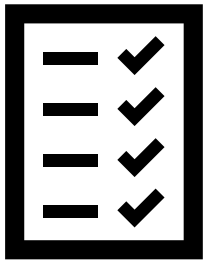
Using AccessMod to evaluate geographic and time barriers to health services, including examples around addressing snakebites –

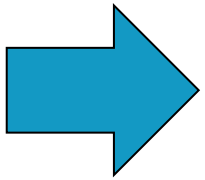
Karin Stenberg, Technical Officer,
Economic Evaluation and Analysis (HGF/EEA),
and
Prashant Hedao, GIS Centre for Health (DDI/DNA)
World Health Organization

Universal Health Coverage is about access to a guaranteed set of of health services for <u>everyone</u>

TARGET 3.8 achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all







Financially accessible

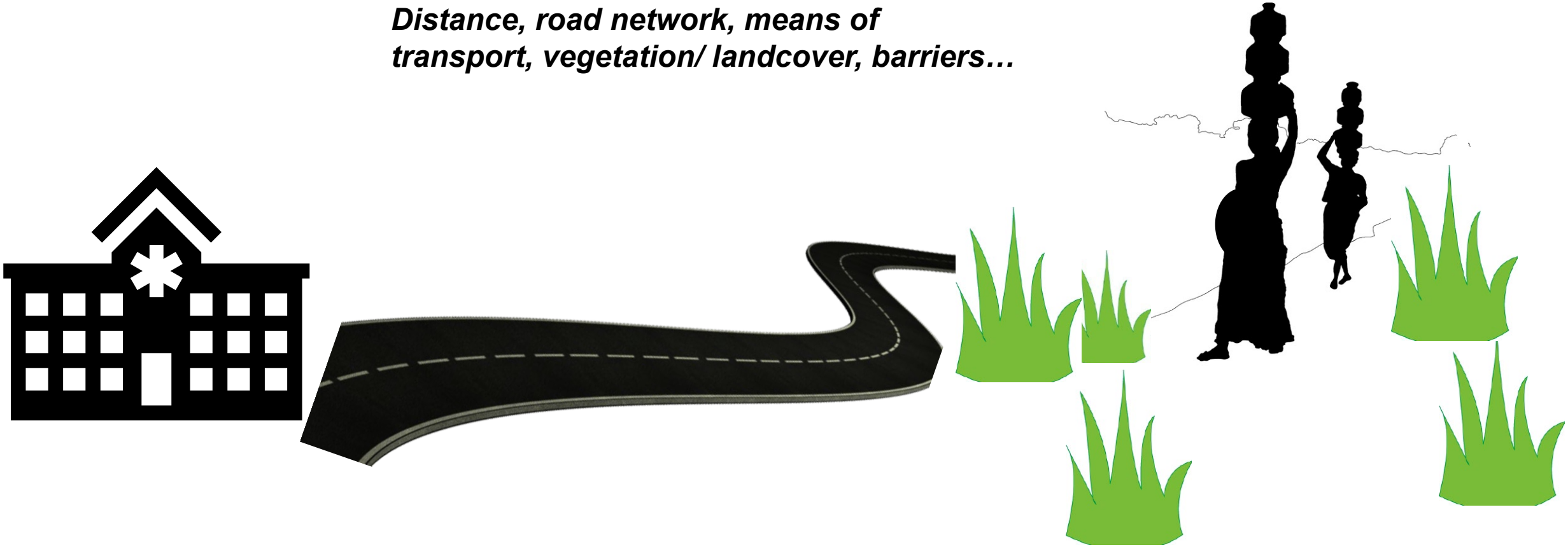
Geographically accessible

High quality

Safe and effective

AccessMod: a tool that looks at whether health systems are set up to facilitate geographic access

Distance, road network, means of transport, vegetation/ landcover, barriers…



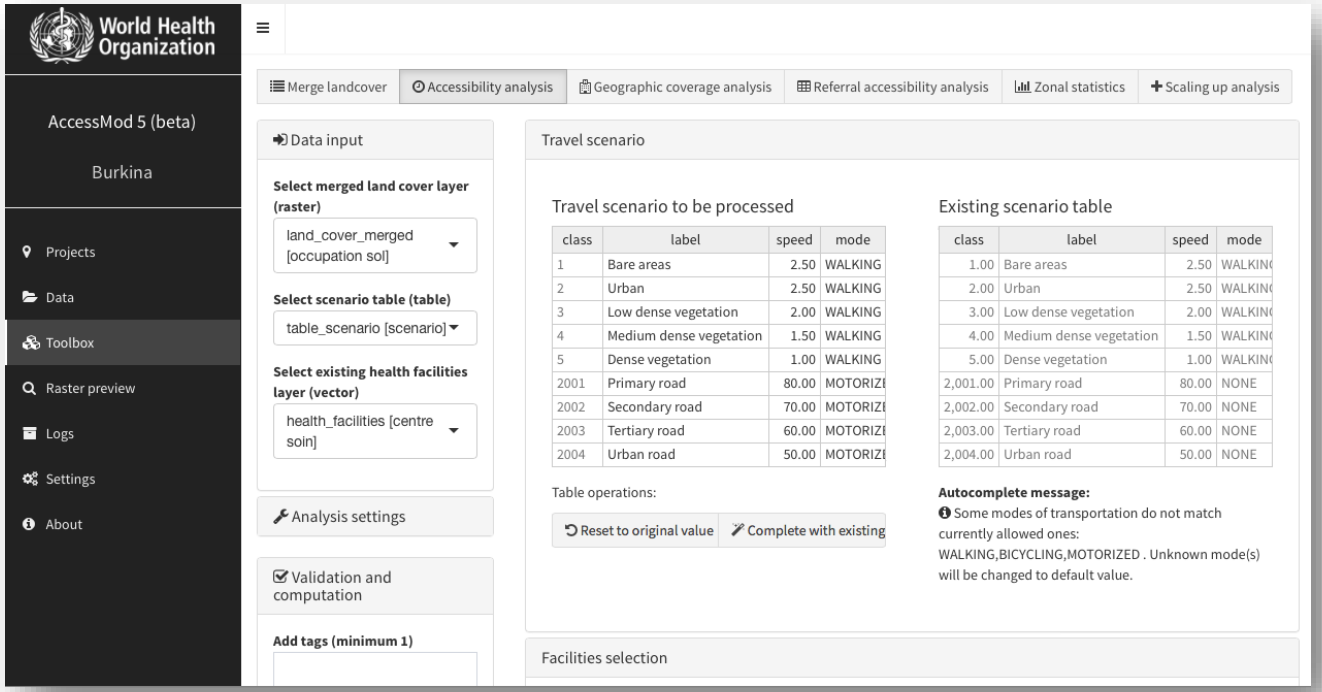
World Health Organization

AccessMod 5

An open source tool

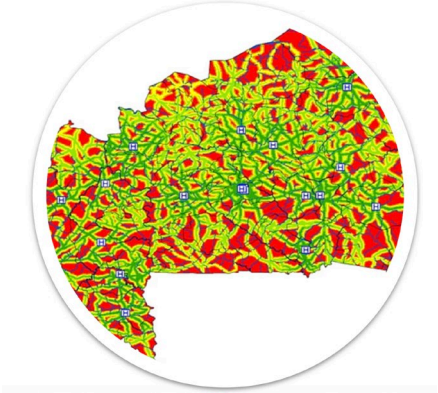
Applied in >15 countries

NEW! shift to an online platform



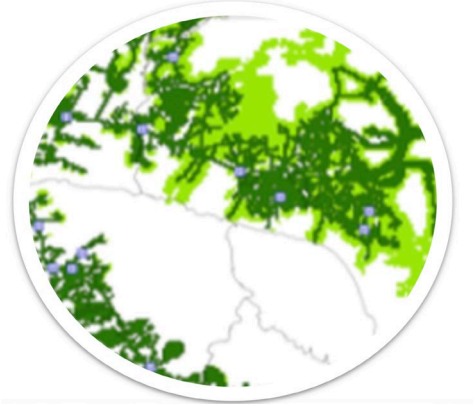
World Health Organization

AccessMod 5: 5 types of analysis



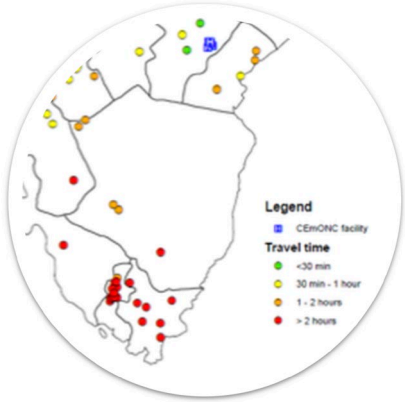
Accessibility analysis

Compute the travel time needed to reach the nearest health facility



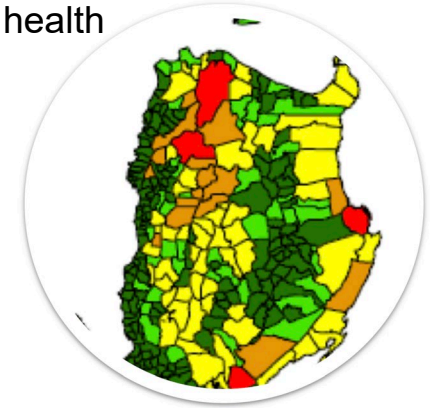
Geographic analysis

Take into account the ***coverage capacity*** of each health facility to identify capacity constraints and how these vary with geography (e.g., number of health workers)



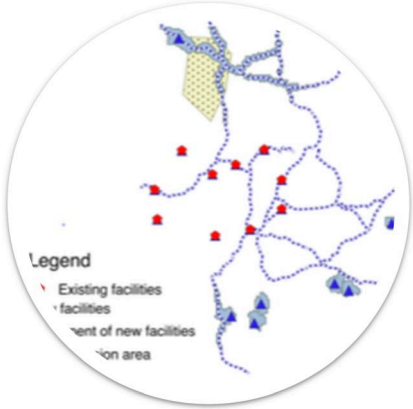
Referral analysis

Calculate travel time and distance separating different types of health facilities



Zonal Statistics

Calculate the percentage of the population with access in each sub national division

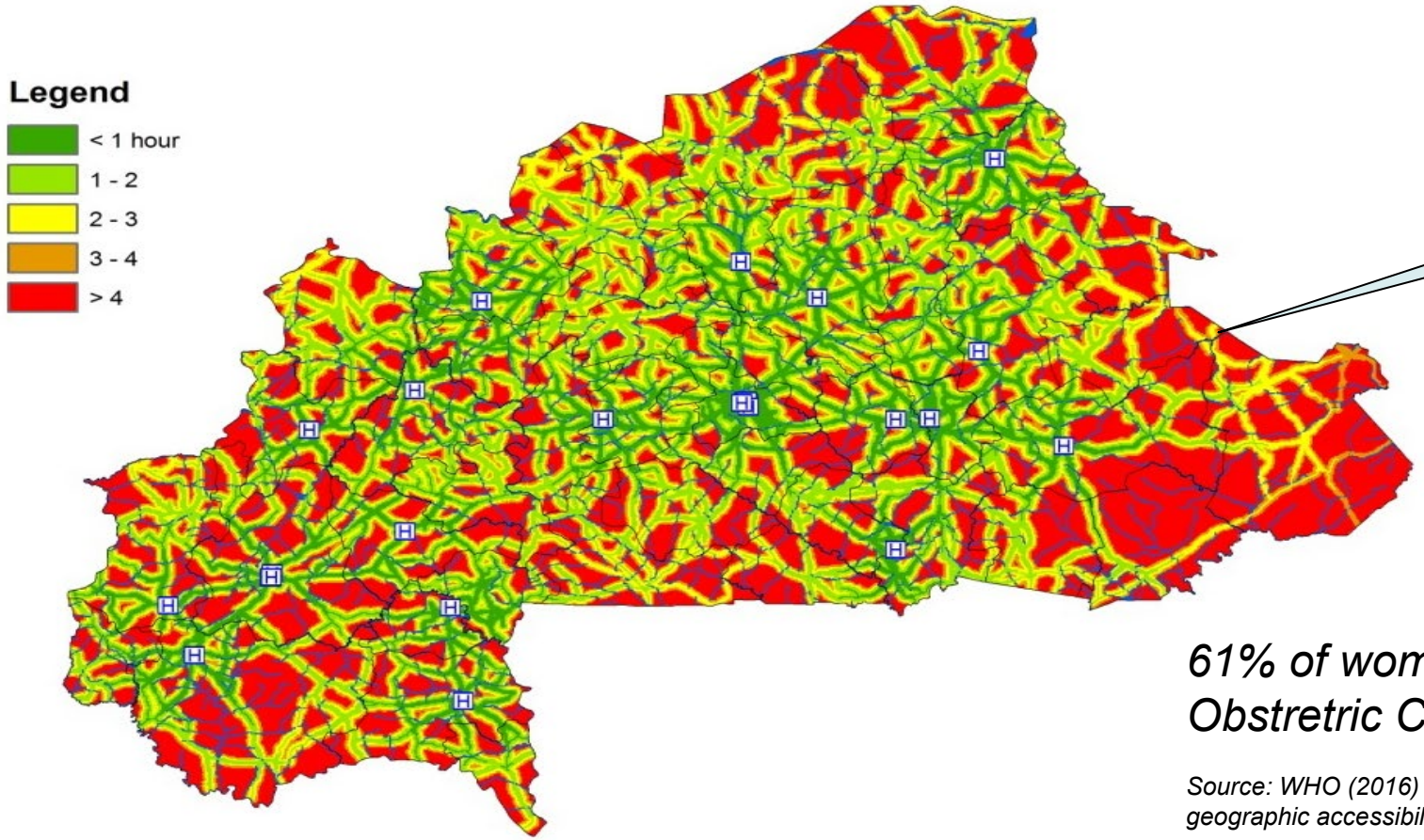


Scaling up analysis

Identify the optimum location for construction of new health facilities

Are facilities accessible?

Travel time to nearest health facility for basic maternity care in Burkina Faso



Where should I build new facilities?

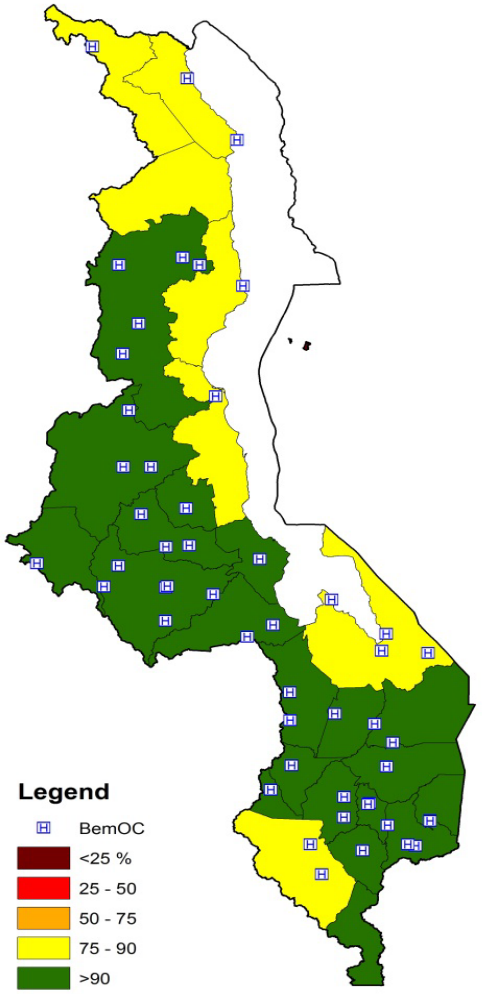
61% of women could reach Basic Emergency Obstretric Care in 2 hours

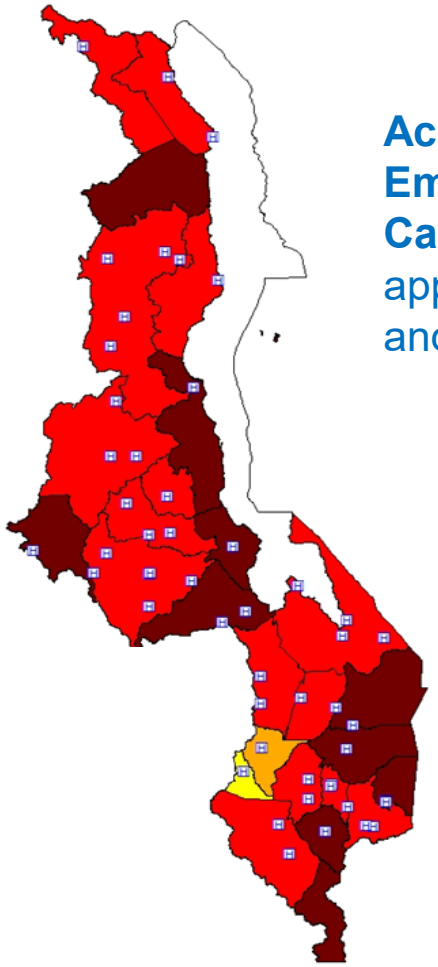
Source: WHO (2016) Investing the marginal dollar for maternal and newborn health: geographic accessibility analysis for emergency obstetric care services in Burkina Faso

World Health Organization

Where are facilities adequately staffed and equipped?

Access to Emergency Obstetric Care within 2 hours travel time (by district)





Access to an Emergency Obstetric Care facility that is appropriately equipped and staffed

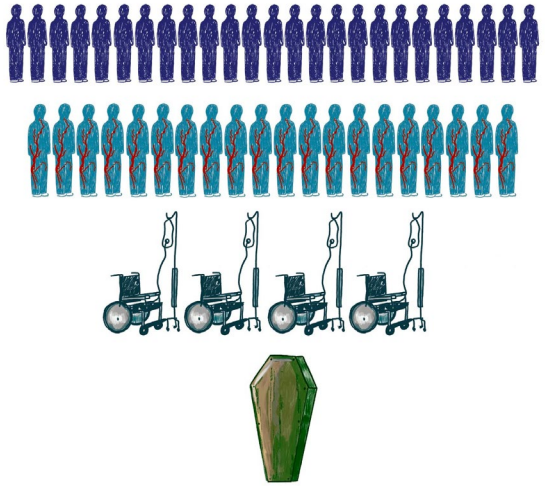
Where should I push system resources? (health workers, equipment, financing?)

EmOC = emergency obstetric care

Source: WHO (2016) Investing the marginal dollar for maternal and newborn health: geographic accessibility analysis for emergency obstetric care services in Malawi

World Health Organization

Snakebite Envenoming – A Global Problem



Every five minutes, 50 people will be bitten by a snake, 25 will be injected with venom, four will be permanently disabled, and one will die.

Snakes are feared by many but are an integral part of the environment. Out of 4,000 species of snakes on the planet, only about 300 are listed as medically relevant to people (<10%), while ~270 are threatened or near-threatened with extinction.

An estimated 146.70 million people across the globe live within range of one or more venomous snake species without adequate health care provisioning

Although snake envenoming is treatable, the vast majority of those affected by venomous snake species live in low-resource areas and lack access to antivenom treatments. The neglected tropical disease must be met with global coordination, real-time data, and accessible tools.

Snakebite Storymap – https://storymaps.arcgis.com/stories/20d04a1d369444599e9971167befa7a8

Data & Information Platform – www.who.int/snakebite-data-paltform

Home / Teams / Snakebite Information and Data Platform

Snakebite envenoming

Snakebite Information and Data Platform +

Antivenom risk-benefit assessment +

World Health Organization

Data & Information Platform – *OVERVIEW*

Overview | Contribute | Information

Snakebite Information and Data Platform

Scientific Name - All - | Common Name - All - | Country Name - All - | Reset

Number of snake species listed below are **292**

Acanthophis antarcticus | Acanthophis cryptamydros | Acanthophis laevis | Acanthophis praelongus | Acanthophis pyrrhus | Acanthophis rugosus | Acanthophis spp. | Acanthophis wellsi | Agkistrodon bilineatus | Agkistrodon contortrix

1 2 ... 23

Acanthophis antarcticus

Species photo

Species Map

Family Name: **Elapidae**
Common Name: **Common death adder**
Risk Category: **Secondary medical importance**
List of Countries: **(1) - Australia**
List of Sub-Region: **Australo-Papua (including Pacific Islands)**
Regions: **Asia and Australasia**
Impacted human population in **2020** is **12592233** Population source: **WorldPop**

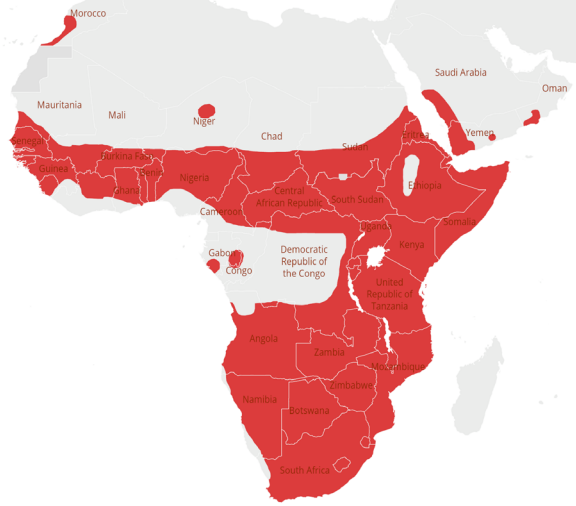
https://www.who.int/redirect-pages/mega-menu/about-us

World Health Organization

Data & Information Platform – *MAPS for Download*

VENOMOUS SNAKE DISTRIBUTION PROFILE

Bitis arietans



COMMON NAME:
Puff adder

TAXONOMIC NAME:
Viperidae

OTHER COMMON NAMES:
Not available

POPULATION WITHIN HABITATION OF BITIS ARIETANS:
16064155

16.53%

COUNTRIES:
46

Angola, Benin, Burkina Faso, Botswana, Burundi, Cameroon, Central African Republic, Chad, Congo, Djibouti, Ethiopia, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, Côte d'Ivoire, Kenya, Lesotho, Mali, Malawi, Mauritania, Morocco, Mozambique, Namibia, Nigeria, Niger, Oman, Rwanda, Saudi Arabia, Senegal, Sierra Leone, South Africa, Somalia, Sudan, Swaziland, United Republic of Tanzania, Togo, Uganda, Democratic Republic of the Congo, Zambia, Zimbabwe, Yemen, Eritrea, Western Sahara

Category 1: Highest medical importance
Category 2: Secondary medical importance

MEDICAL TREATMENT:
Not available

VENOM ACTIVITY:
Not available

WHO RECOMMENDED ANTIVENOMS:

PRODUCT:
FAV-Afrique, Favirept, Polyvalent Snake Antivenom - Equine, Polyvalent Snake Venom Antiserum, SAIMR Polyvalent Snake antivenom

MANUFACTURER:
Sanofi-Pasteur

COUNTRY OF ORIGIN:
France

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Production date: **2021-03-31**
Credits: NTD & DDI Departments, WHO
https://www.who.int/snakebite

World Health Organization

World Health Organization

Scope Of Project – Phase II in 14 African Countries

Integration with DHIS2

DHIS2 software (https://www.dhis2.org/) enabling integration of country-level snakebite epidemiological data and antivenom procurement and use data, that will be systematically collected and reported by countries to WHO starting in 2021.

Integration with AccessMod5 / Accessibility

WHO's AccessMod5 software (https://www.accessmod.org/) giving users the ability to model physical accessibility to healthcare and snakebite treatment resources and commodities in different parts of the world.

Mobile App Version of Snakebite Hub Site

A mobile application of the website that enables access to the website for users in snakebite-affected countries. They might not have easy access to desktop computing services and could be at low bandwidth.

Field Data Collection & Management

Antivenom stockpile programme data collection tools for tablet, desktop and mobile users to enable stock inventory, distribution and usage data to be reported at sub-national, national and regional level to credentialed users from Ministries of Health, WHO and other approved stakeholder or procurement organizations.

Snake Habitat Modeling

Spatio-temporal modelling of snake habitat to improve the existing snake range distribution maps

Website Updating & Maintenance

Regular updating and maintaining the website based on the updated map layers and also feedback from the users. Including documentation of help on how to use the WebApp

ESWATINI – Access to Snakebite Treatment Centres

Assumptions

- Walking and motorized travel systems are in place
- Average walking speed is 3 to 5 kmph
- Average traveling time on road system is 57 kmph.

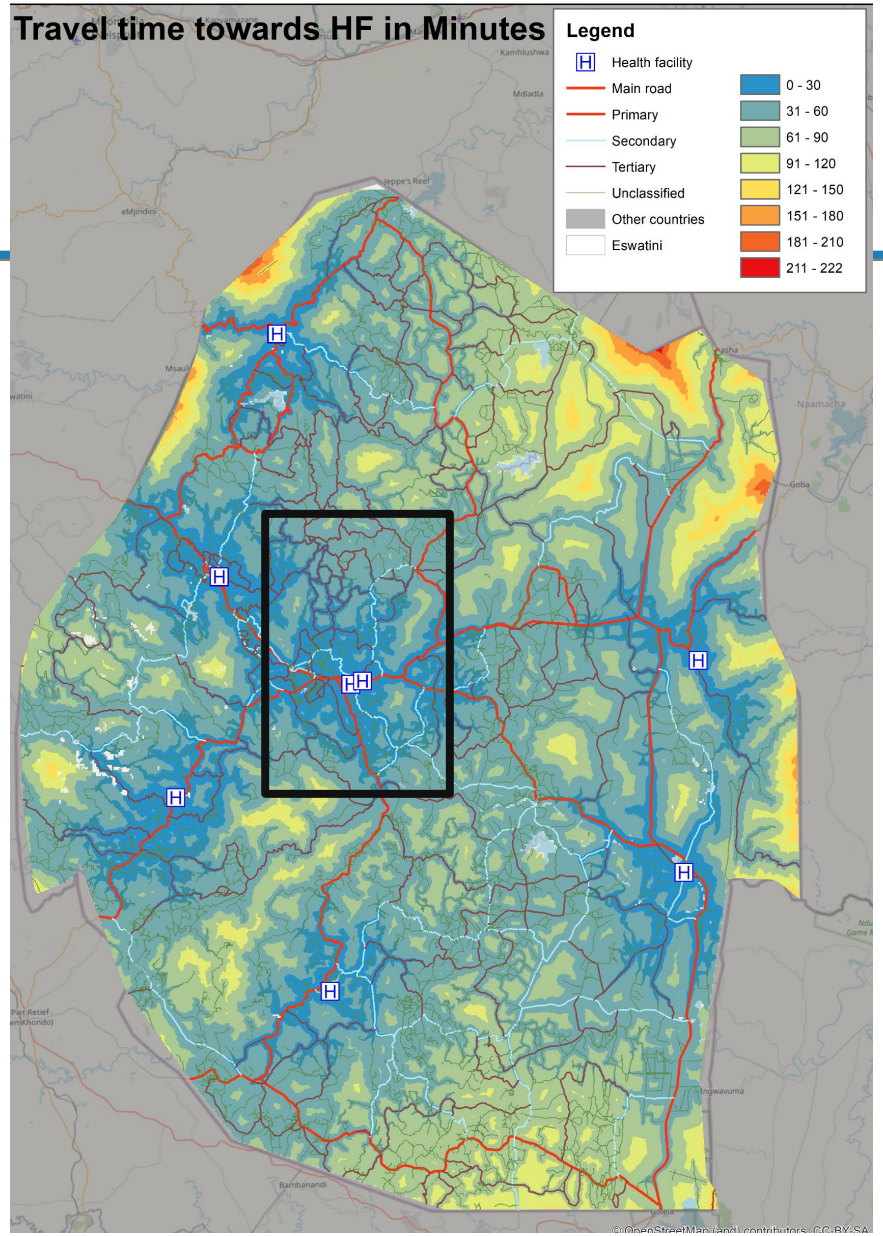
Model was run for 6 hours (360 min) time period.

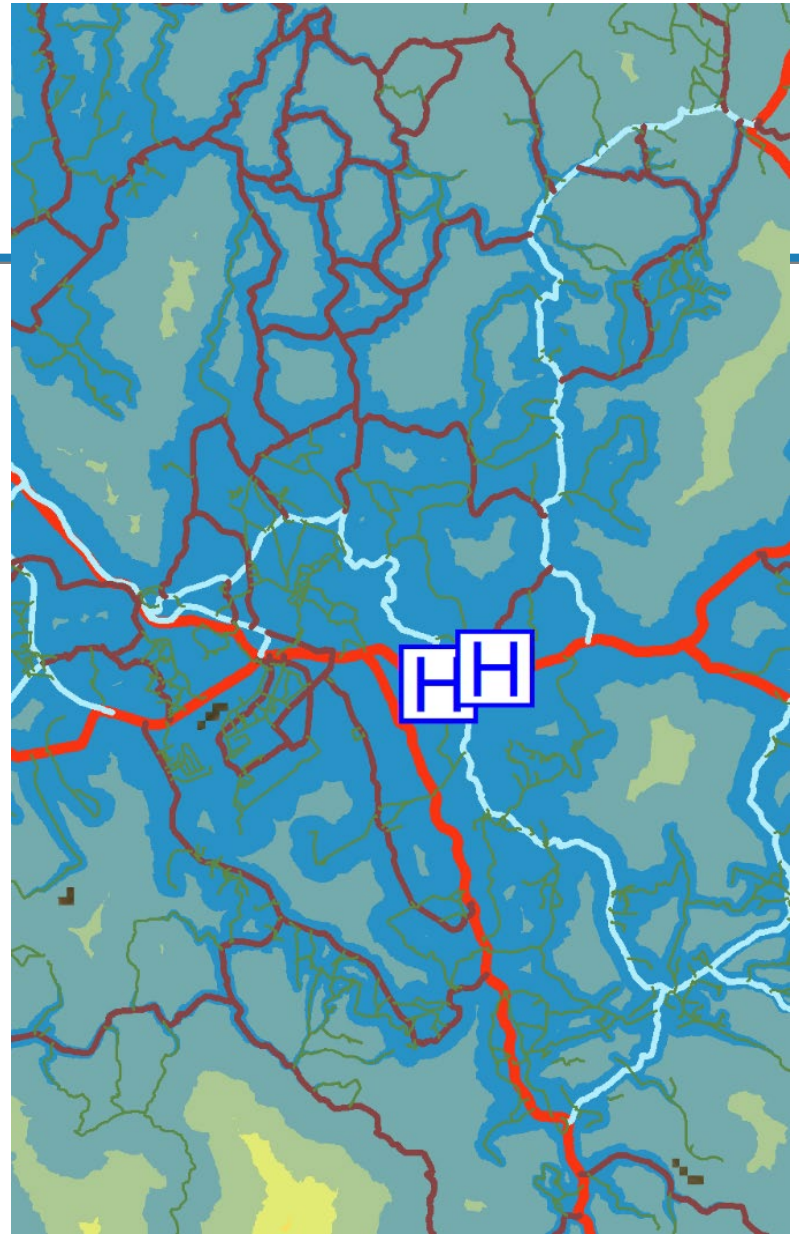
More than 99% of the areas are accessible to hospital less than 180 Min or 3 hours time.

Legend

- Health facility
- Main road
- Primary
- Secondary
- Tertiary
- Unclassified

- 0 - 30
- 31 - 60
- 61 - 90
- 91 - 120
- 121 - 150
- 151 - 180
- 181 - 210
- 211 - 222





World Health Organization

For more information

https://www.who.int/tools/accessmod-geographic-access-to-health-care

https://www.accessmod.org/

https://storymaps.arcgis.com/stories/20d04a1d369444599e9971167befa7a8

https://www.who.int/snakebite-data-platform