

# **SOME DISEASES - COURSE INFECTION CONTROL IN GLOBAL PERSPECTIVE 2022**

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# CHILDHOOD VACCINE PREVENTABLE AIWAYS DISEASES

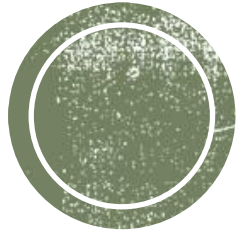
## VACCINE COVERAGE 2019:

■ Measles – MMR vaccine	85% 71 %	1 dose 2 doses
■ Diphtheria, pertussis – DPT-vaccine	85%	3 doses
■ Pneumococcal vaccine	48%	3 doses
■ Hemophilus influenza – Hib Vaccine	72%	3 doses



# VECTOR BORNE DISEASES - FIVE DISEASES – MOST RELEVANT

ALL TRANSMITTED BY TWO DIFFERENT TYPES OF MOSQUITOES



**Anopheles**



**Aedes**

Malaria - Anopheles

Dengue - Aedes

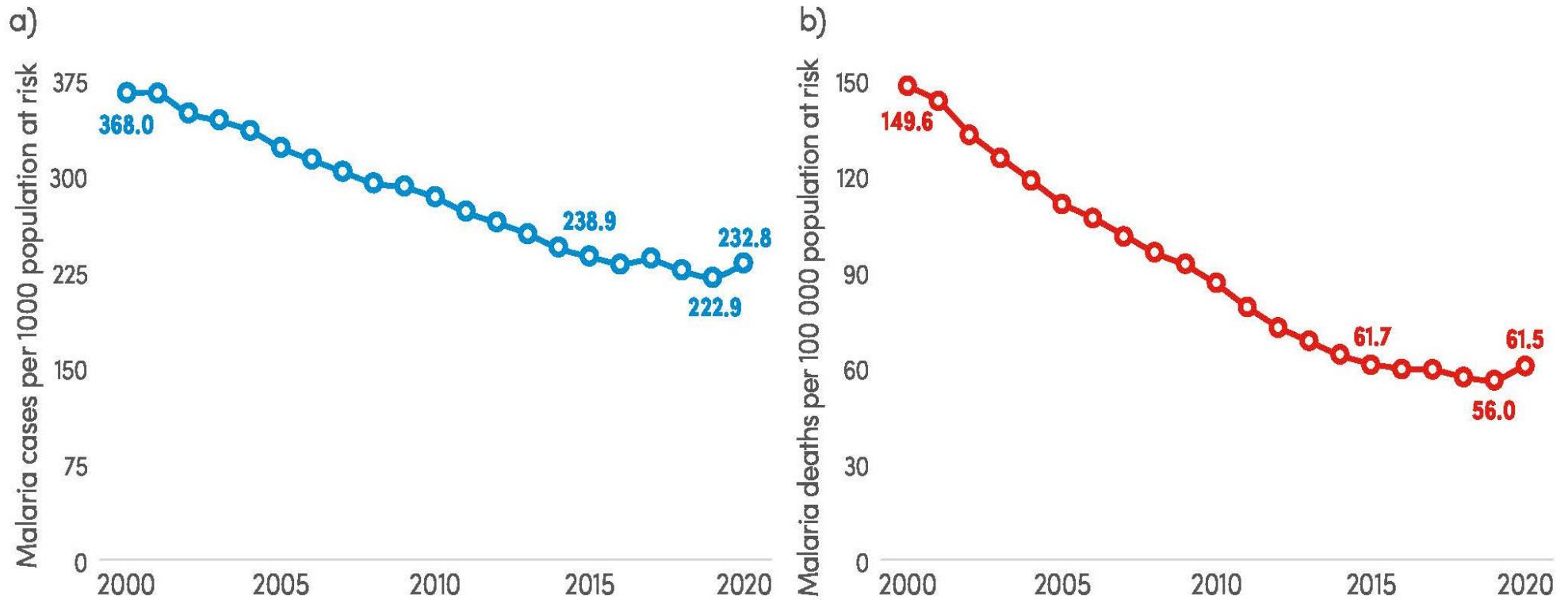
Yellow fever - Aedes

Zika - Aedes

Chikungunya- Aedes

**FIG. 3.3.**

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2020; and c) malaria cases by country in the WHO African Region, 2020 *Source: WHO estimates.*





# EPIDEMIOLOGY, MORTALITY AND MORBIDITY

- **Malaria**

- 2019 - estimated 229 million cases of malaria worldwide.
- 2019 – estimated malaria deaths 409 000

- **Dengue**

- The global incidence of dengue has grown dramatically in recent decades. About half of the world's population is now at risk. There are an estimated 100-400 million infections each year. Huge burden to health care services.

- **Yellow fever**

- Large epidemics of yellow fever occur when infected people introduce the virus into heavily populated areas with high mosquito density

Getting the right diagnose is the largest problem

Need for new diagnostic bedside easy to use rapid diagnostic tests.



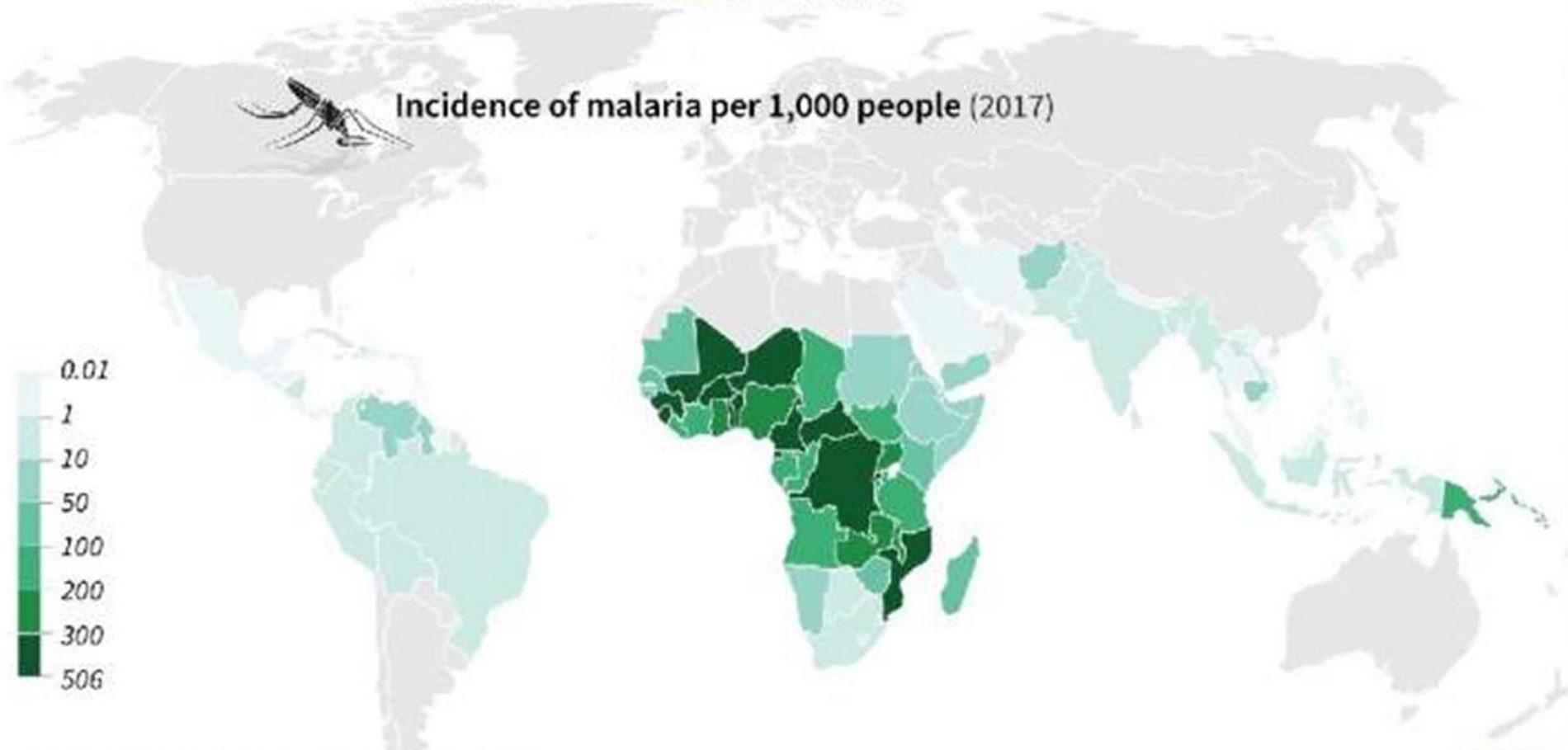
# Malaria

A preventable and treatable mosquito-borne illness that mostly affects African children

**219 million**  
cases in 2017

**435,000 deaths**  
About **61% children** under five

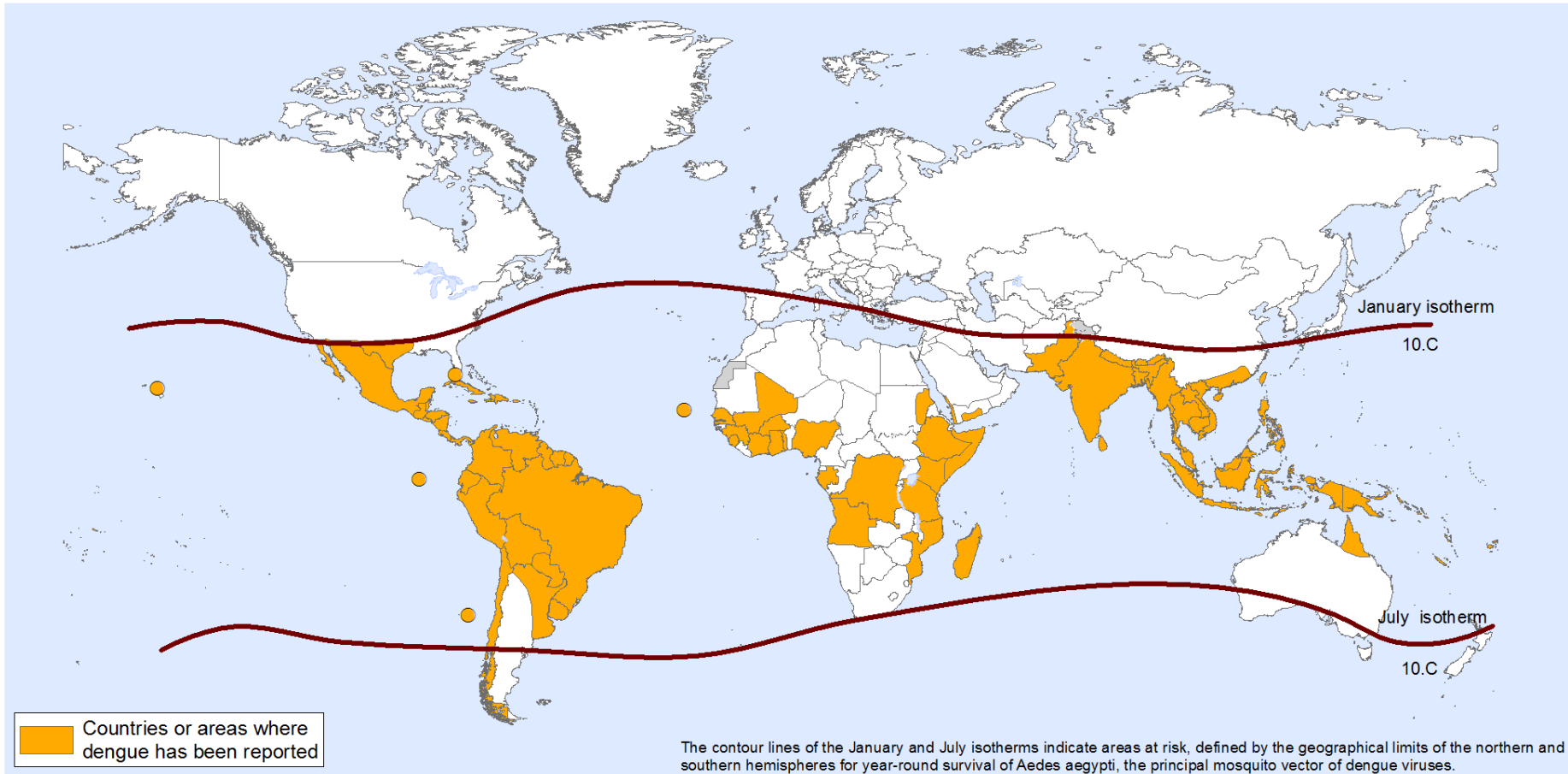
**93%** of all malaria deaths  
occur in **sub-Saharan Africa**



Source: World Health Organisation estimates 2017

© AFP

## Dengue, countries or areas at risk, 2013



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization 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.

Data Source: World Health Organization  
Map Production: Health Statistics and Information Systems (HSI)  
World Health Organization



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[Global Dengue Transmission ITHRiskMap.png \(2027×1358\)](#)  
[ridpest.com](http://ridpest.com)



# ZIKA

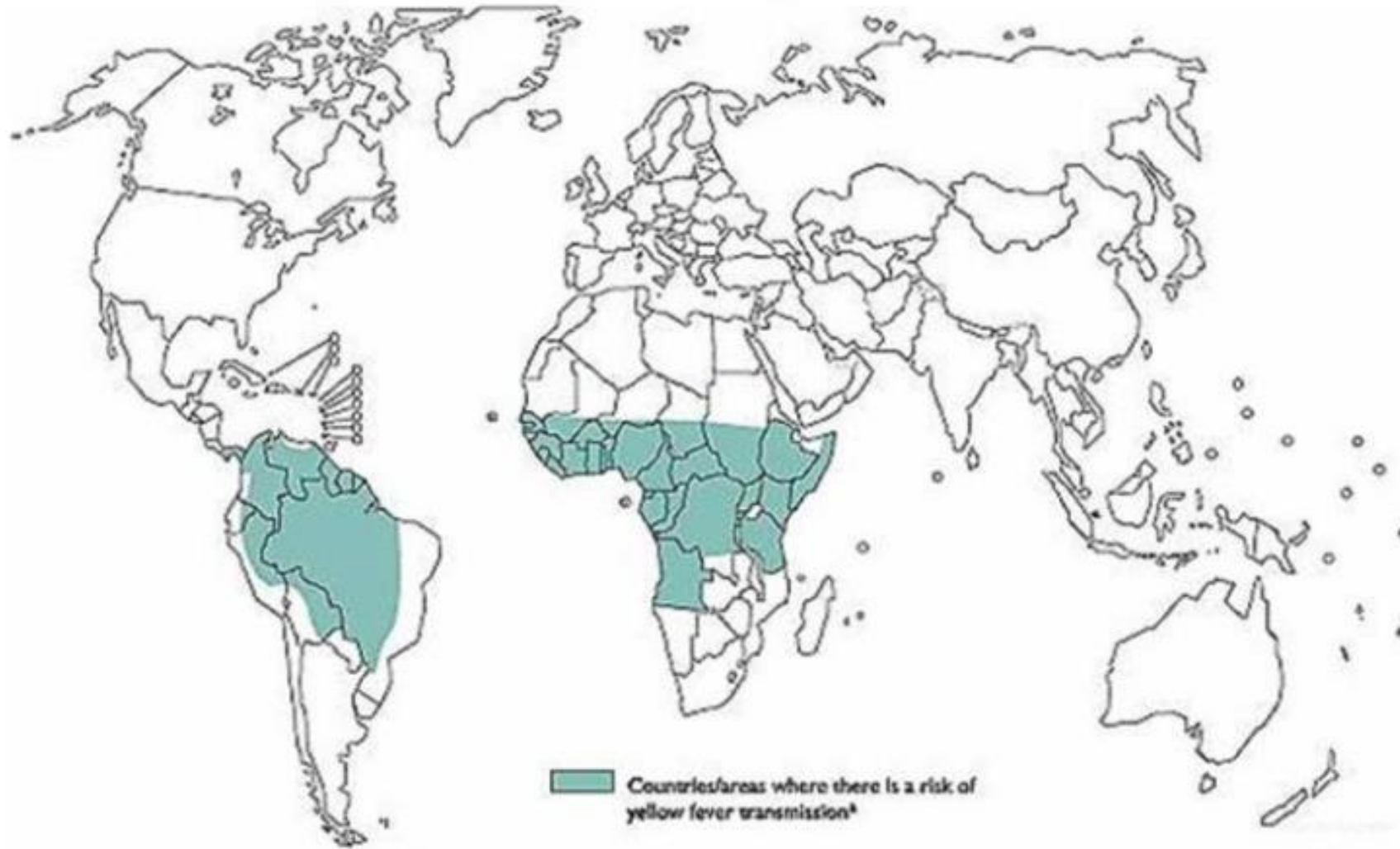


- [Global map of Zika virus infection](#) Content source: Centers for Disease... | [Download Scientific Diagram \(researchgate.net\)](#)





## Areas at risk of Yellow Fever transmission



\* Either yellow fever has been reported or the presence of vectors and animal reservoirs creates a potential risk of infection (considered to be endemic areas).



## • EMERGING DISEASES

### • Zika

- A huge pandemic starting the Americas in 2015/16.
- Infection during pregnancy can cause microcephaly and other congenital malformations - congenital Zika syndrome.
- As of July 2019, a total of 87 countries - mosquito-borne transmission – numbers not updated since.
- 61 countries - *Aedes aegypti* vectors but have not yet documented transmission.
- Accurate and up-to-date epidemiologic data on ZIKV are limited in many areas of the world.

### • Chikungunya

- Since 2004, chikungunya has spread rapidly and been identified in over 60 countries throughout Asia, Africa, Europe and the Americas.

## EPIDEMIOLOGY, MORTALITY AND MORBIDITY

Getting the right diagnose is the largest problem

Need for new diagnostic bedside easy to use rapid diagnostic tests.



[Health topics \(who.int\)](http://www.who.int)







## **DENGUE IS FOUND MOSTLY IN URBAN AND SEMI-URBAN AREAS.**

- **The global incidence of dengue has grown dramatically in recent decades. About half of the world's population is now at risk. There are an estimated 100-400 million infections each year.**
- **Dengue prevention and control depends on effective vector control measures.**





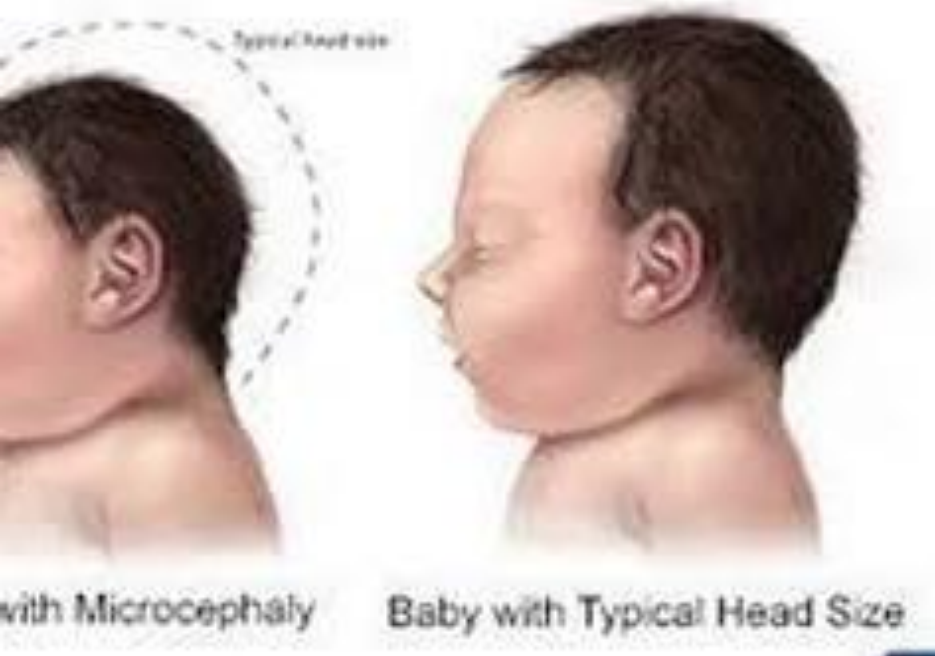
# ZIKA



- Transmitted primarily by *Aedes* mosquitoes, which bite during the day.
- Symptoms are generally mild and include fever, rash, conjunctivitis, muscle and joint pain, malaise or headache. Symptoms typically last for 2–7 days.
- Most people with Zika virus infection do not develop symptoms.
- An increased risk of neurologic complications is associated with Zika virus infection in adults and children, including Guillain-Barré syndrome, neuropathy and myelitis





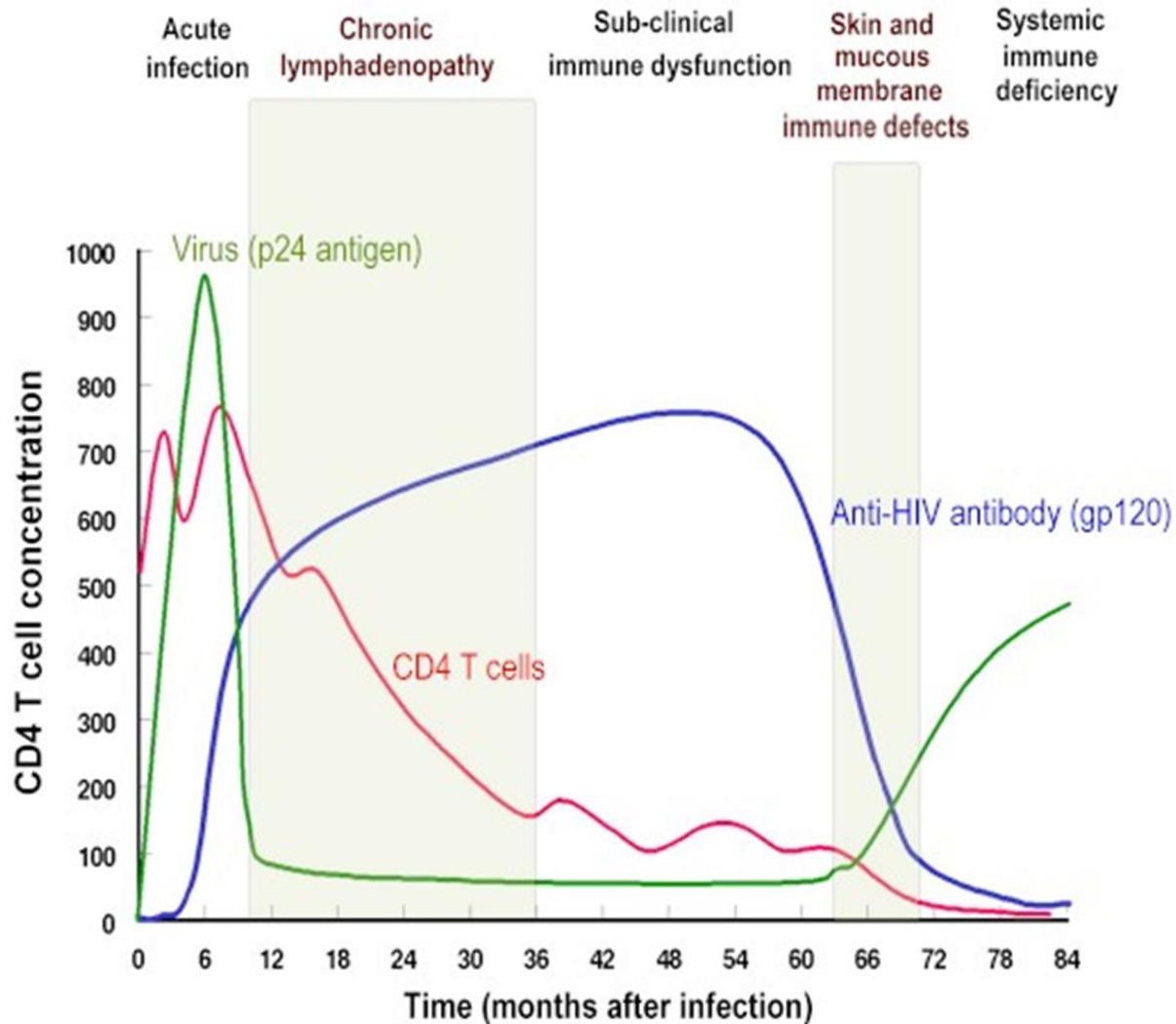


# ZIKA IN PREGNANCY

- **Zika virus infection during pregnancy can cause infants to be born with microcephaly and other congenital malformations, known as congenital Zika syndrome.**
- **Zika virus is also associated with other complications of pregnancy including preterm birth and miscarriage.**
- No vaccine is yet available



# HIV – CLINICAL COURSE AND IMMUNESYSTEM



An **antigen/antibody test** performed by a laboratory on blood from a vein can usually detect HIV infection 18 to 45 days after an exposure.

**Antibody tests** can take 23 to 90 days to detect HIV infection after an exposure. Most rapid tests and self-tests are antibody tests.

[Types of HIV Tests](#) | [Testing](#) | [HIV Basics](#) | [HIV/AIDS](#) | [CDC](#)



# HIV KEY FACTS

- claimed almost 33 million lives so far.
- There were an estimated 38.0 million people living with HIV at the end of 2019.
- In 2019, 68% of adults and 53% of children living with HIV globally were receiving lifelong antiretroviral therapy (ART). 59% had achieved suppression of the HIV virus with no risk of infecting others;
- (85%) of pregnant and breastfeeding women living with HIV also received ART,
- At the end of 2019, an estimated 81% of people living with HIV knew their status.
- between 2000 and 2019, new HIV infections fell by 39% and HIV-related deaths fell by 51%, with 15.3 million lives saved due to ART.
- The number of new people starting treatment is far below expectation due to the reduction in HIV-testing and treatment initiation and ARV disruptions that occurred during the COVID-19 pandemic.

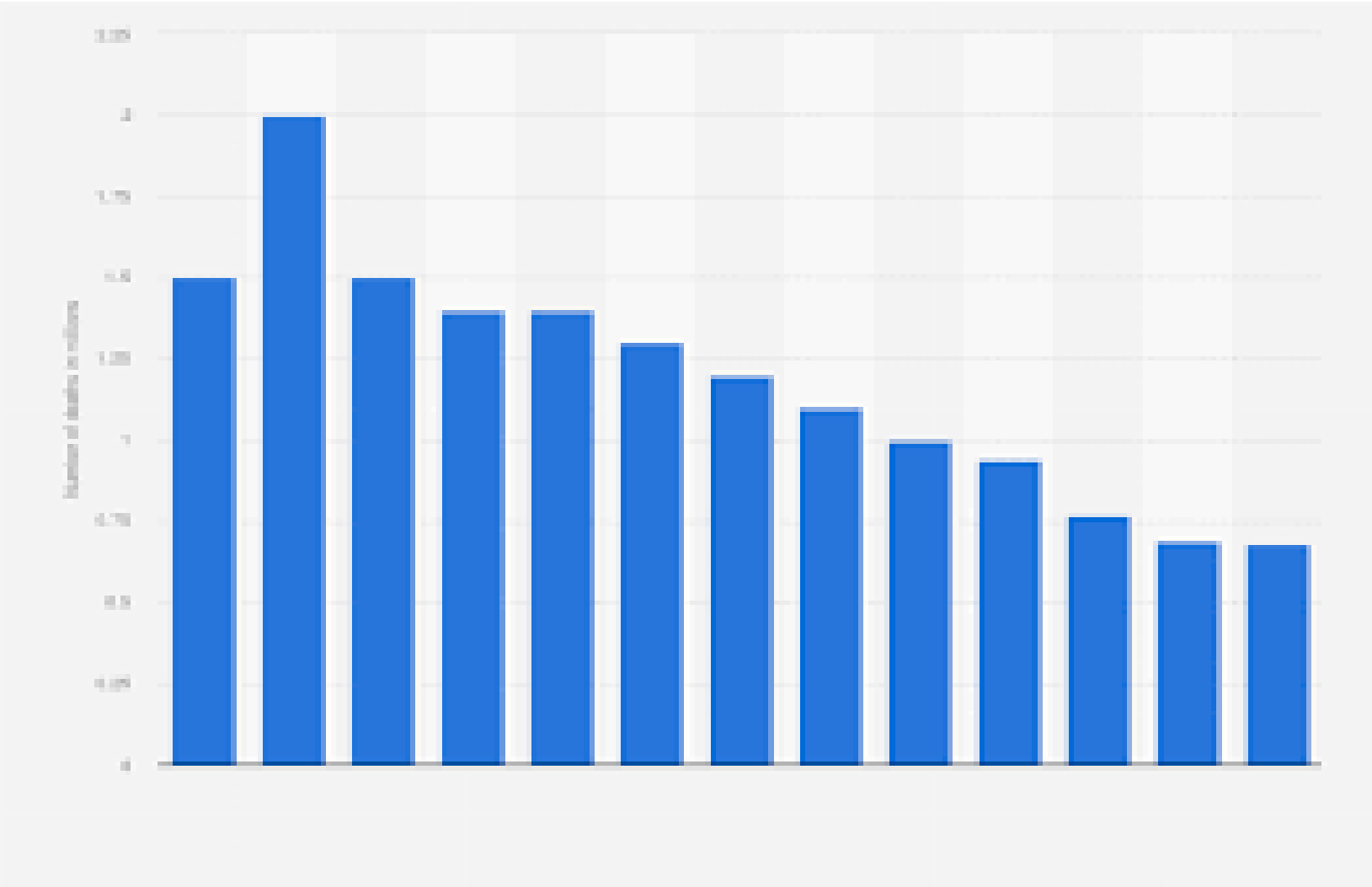


[HIV/AIDS \(who.int\)](https://www.who.int)





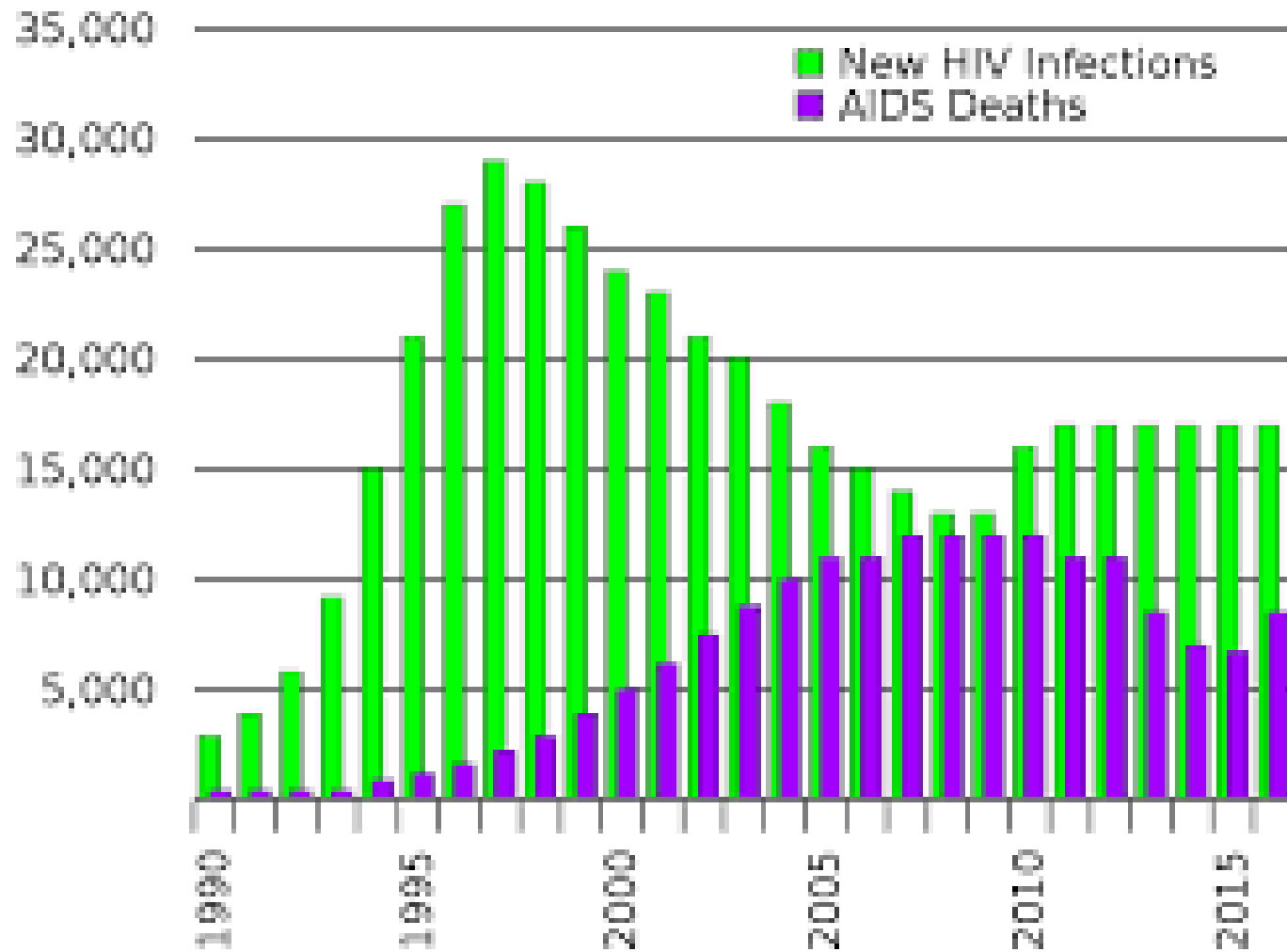
# AIDS-RELATED DEATHS NUMBER WORLDWIDE 2000-2020



• [AIDS-related deaths number worldwide 2000-2020](#) | Statista







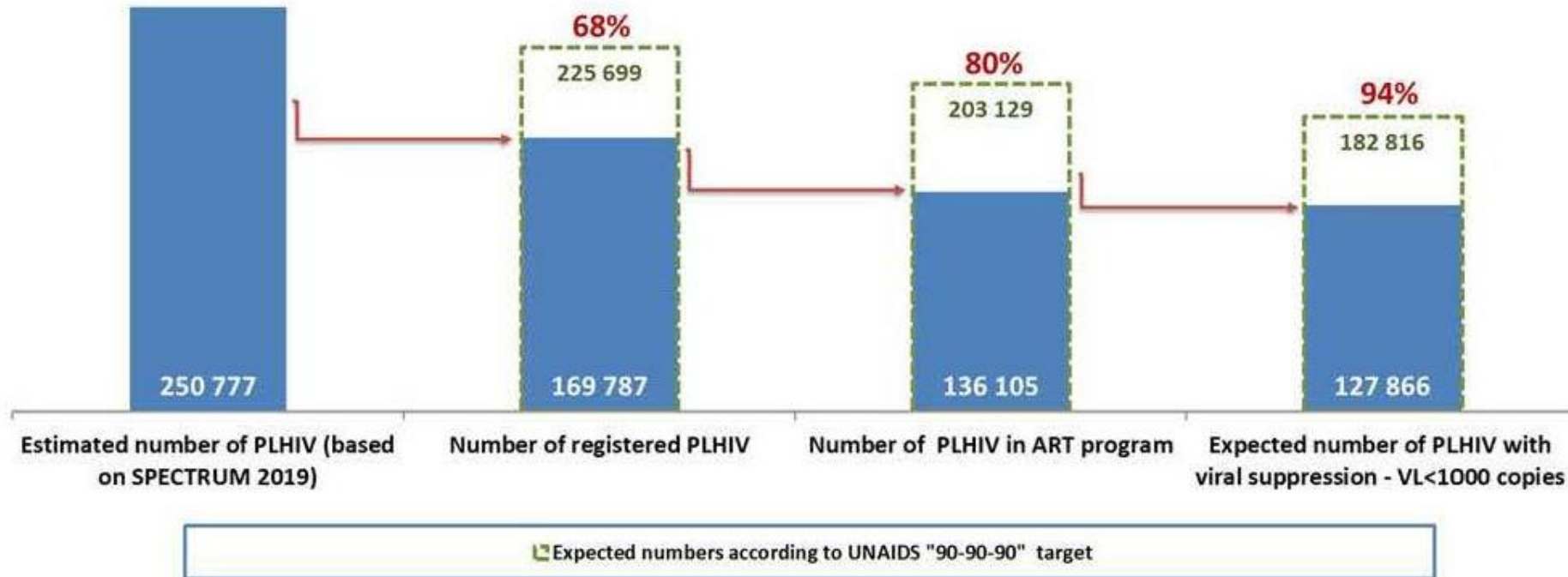
# ANNUAL UKRAINE AIDS DEATHS.

[File:Annual Ukraine AIDS deaths.svg](#)  
- [Wikimedia Commons](#)



# HIV IN UKRAINE

Cross-sectional HIV cascade Ukraine, 2019



# HIV IN UKRAINE

- In 2019, 2977 AIDS related deaths
  - (14% less than in 2018)
- HIV epidemic is mixed in Ukraine.
- Prevalence of HIV among general population:
  - 0.9-1%.
- significantly higher among certain key populations:
  - 22.5% among PWID (people who inject drugs)
  - 5.2% among sex workers (SW),
  - 7.5% among men who have sex with men (MSM)



- When the epidemic began in Ukraine, it mainly affected people – predominantly men – who inject drugs.
- But since 2008, sexual transmission of HIV has been driving the epidemic,
- with sexual partners of people from key population groups particularly at risk.
- Among 16,405 newly diagnosed in 2019, 73.6% of HIV cases has sexual and 25.8% parenteral mode of transmission
- Government and civil society have generally been proactive in responding to HIV and there has been some successes in rolling out antiretroviral treatment (ART) and harm reduction programs.
- However, the difficult situation in the non-controlled by Ukrainian Government territories of Donetsk, Lugansk regions and the Crimea





## ■ **HIV and tuberculosis (TB) in Ukraine**

- The HIV/TB co-infection situation remains severe.
- In 2019, tuberculosis was the cause of around a half (32,7%) of all AIDS-related deaths.
- The country also carries a high burden of TB and is ranked fourth in the world for multi-drug resistant TB (MDR-TB)
- Ukraine has the highest HIV/TB co-infection and the second highest absolute number of cases in the European region.
- In 2019, among the 17,052 PLHIV who were taken under medical supervision due to HIV for the first time, 20.3% (3456 people) were diagnosed with tuberculosis, and 55.8% (9511 people) were covered with preventive treatment.



# TB KEY FACTS

- A total of 1.4 million people died from TB in 2019 (including 208 000 people with HIV).
- Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS).
- In 2019, an estimated 10 million people fell ill with tuberculosis (TB) worldwide.
  - 5.6 million men,
  - 3.2 million women and
  - 1.2 million children.
- Child and adolescent with TB is often overlooked by health providers and can be difficult to diagnose and treat.
- A global total of 206 030 people with multidrug- or rifampicin-resistant TB (MDR/RR-TB) were detected and notified in 2019, a 10% increase from 186 883 in 2018.



[Tuberculosis \(who.int\)](https://www.who.int)



## ■ HIV epidemiology

- variation in HIV prevalence between countries
- variation within countries,
  - variation by province or region,
  - urban versus rural location,
- between genders,
- age groups,
- cultural groups
- religious groups,
- by activity (e.g., sex work, **mobility, migration**).

This heterogeneity has important implications for thinking about national-level HIV prevention communication in relation to the goal of reducing HIV incidence and prevalence.



[CADRESidaFinalReportJan07.pdf](#)

