

## Most comprehensive study to date shows success of the Millennium

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A major new analysis from the Global Burden of Disease Study 2013 published in *The Lancet*, shows that accelerated progress against the global burden of HIV, malaria, and tuberculosis (TB) has been made since 2000 when governments worldwide adopted Millennium Development Goal (MDG) 6 to combat HIV/AIDS, malaria, and TB.

The new estimates show that worldwide, the number of people living with HIV has risen steadily to around 29 million people in 2012. The data also show that [malaria](#) is killing more people than previously estimated, although the number of deaths has fallen rapidly since 2004. Overall progress for TB looks promising—with faster rates of decline in incidence in 12 regions of the world, compared with the decade before the Millennium Declaration.

The authors say that their assessment reveals that the HIV epidemic is smaller than previously estimated, with the overall amount of ill-health and premature death resulting from HIV roughly 25% lower than the latest estimate provided by UNAIDS in 2012. They also indicate that the global burden of malaria could be larger than recent WHO estimates.

Lead author Dr Christopher Murray, Professor of Global Health at the University of Washington, USA, explains, "We have seen a huge increase in both funding and the policy attention given to HIV/AIDS, malaria, and TB over the past 13 years, and our findings show that a focus on these specific diseases has had a real impact. However, much remains to be done and all three diseases continue to be major health

challenges in 2013."

Professor Murray and an international team of researchers performed a comprehensive and rigorous analysis of the available data to track the global, regional, and national incidence, prevalence, and [premature death](#) caused by HIV, malaria, and TB for 188 countries between 1990 and 2013. They used data from all available sources including vital registration systems and verbal autopsy data.

## **Key findings for the three diseases include:**

### **HIV:**

- Although the worldwide incidence of HIV has declined substantially every year since its peak in 1997 (2.8 million new infections), 1.8 million people are still newly infected each year, and 101 countries (74 of which are developing) still have increasing HIV incidence. In the decade since 2002, however, great progress has been made in reducing new infections in children (decrease 62%).
- Worldwide, the number of people living with HIV has risen steadily to around 29 million people in 2012.
- At the peak of the epidemic in 2005, HIV caused 1.7 million deaths worldwide, falling substantially every year since to about 1.3 million deaths in 2013.
- Regions with an ongoing increase in mortality from HIV since 2000 are high-income Asia Pacific, central and eastern Asia, eastern and central Europe, north Africa and the Middle East, Oceania, and southern and western sub-Saharan Africa. In a number of these regions, large proportions of HIV cases are in intravenous drug users. This may in part be because countries are less inclined to provide treatment services to drug users, or because drug users are a more difficult group for health services

to reach.

- Treatments for HIV such as ART have saved around 19.1 million life-years since 1996, 5.7 million in developed countries and 13.4 million (70%) in developing countries. See figure 11 page 25.

## **TB:**

- Despite downward trends in TB prevalence rates since 2000, the number of people living with TB worldwide increased from around 8.5 million in 1990 to about 12 million in 2013.
- The number of TB deaths has fallen rapidly since 2000. Worldwide around 1.6 million people died from TB in 2000 compared with 1.4 million (all TB - 1.3 million non-HIV TB) in 2013.
- Overall progress for TB is promising. In 15 of 21 regions of the world, there is evidence of accelerating declines in incidence rates from 2000 to 2013 compared with 1990 to 2000 as funding efforts to combat the disease increased to US\$8.3 billion. However, there has been substantial regional and country variation in progress. For more detailed findings for each country and all regions see table 4 page 29 and table 5 pages 31-42.
- The TB burden is widespread but most evident in south and southeast Asia. Since 2000, prevalence (decrease 2.4%), incidence (1.1%), and mortality (4.2%) have declined every year in south Asia. Despite these signs of progress, the region still accounts for over a third (35%) of new cases of TB and almost half (48%) of TB deaths.
- Most new cases of TB and deaths in HIV-negative individuals occur in men and boys, accounting for 64% of all new cases and 65% of deaths.

## **Malaria:**

- Worldwide new malaria cases and deaths have declined steadily since 2004 as funding efforts for the disease rose to \$11.3 billion between 2000 and 2011.
- Global malaria incidence peaked in 2003, with 232 million new cases, subsequently falling by about 29% to 165 million new cases in 2013.
- Four countries still have over 5 million new malaria infections a year including India (over 60 million cases), Nigeria (30 million), Democratic Republic of Congo (6 million), and Mozambique (6 million).
- Malaria is killing more people worldwide than previously thought. Malaria deaths peaked in 2004 at about 1.2 million declining to about 855 000 in 2013—slightly higher than the number of deaths estimated by WHO in 2013 (627 000 deaths). See figure 16 page 44. Three countries— Nigeria, Democratic Republic of Congo, and India—account for roughly half of all malaria deaths.
- Progress in combating malaria can be seen in most regions. Central Asia has seen new infections fall by around 38% since 2000 (see figure 18 page 47). In sub-Saharan Africa child deaths from malaria have fallen by almost a third (31.5%) since 2004. For more detailed findings for each country and all regions see table 7 pages 48.

According to Professor Murray, "Estimates of the global burden of HIV, malaria, and TB are crucial elements of the effort to control these diseases. However, what is clear from our analysis is how little we reliably know in many countries to track progress. Rapidly reducing the massive uncertainty that surrounds the measurement of these diseases, particularly malaria, will be essential if we are to better monitor, and respond to, evidence about progress, or not, with their control."

In a linked Comment, Rifat Atun, Professor of Global Health Systems at

Harvard University, Boston, USA, calls for new global standards to make available the data, methods, and models used in global health estimates of incidence, prevalence, mortality, and morbidity. He writes that, "Guidelines exist for reporting health research, including for randomised trials and observational studies. Leading economic journals only publish research articles that make available the data, models, programmes, simulations, and other computation details used in analyses to permit replication. Global health studies providing estimates of incidence, prevalence, mortality, and morbidity should be subject to similar standards to further strengthen the transparency, quality, and rigour of data, methods, and results. By providing detailed information on key data sources, key adjustments to data, modelling strategies, and uncertainty analyses, Murray and colleagues have pushed the boundaries of reporting in [global health](#) to levels expected of other disciplines and areas of health research—an important step in the right direction."

**More information:** On 22 July, the paper will be presented at AIDS 2014, the 20th international AIDS conference of the IAS, taking place in Melbourne, Australia, from 20-25 July, 2014.

[www.thelancet.com/journals/lan ... \(14\)60844-8/abstract](http://www.thelancet.com/journals/lan... (14)60844-8/abstract)

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