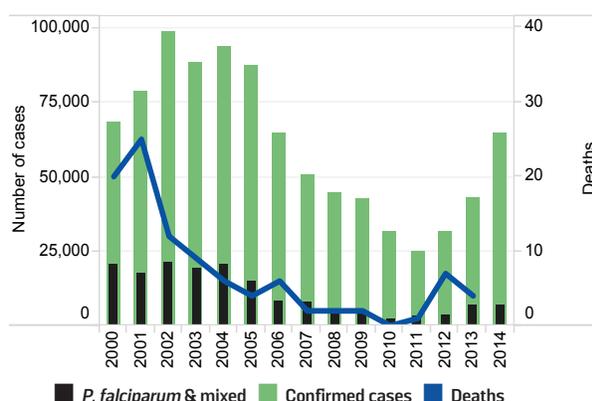


PERU

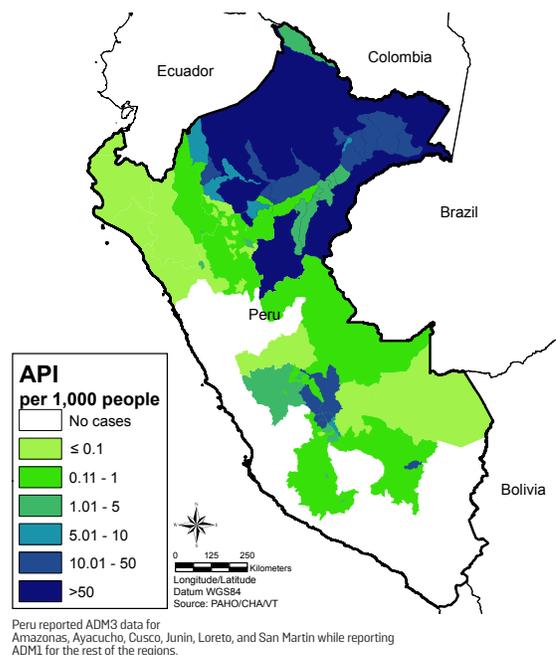
Malaria in Peru has fluctuated during the 2000–2014 period. Peru was once on track to meet WHA 58.2's MDG 6C targets for malaria, having decreased the number of cases by 63% by 2011 compared to 2000 (Figures 1 and 2). However, malaria has more than doubled since then and in 2014 around 65,000 cases were reported. Peru had a 32.7% increase in cases between 2013 and 2014. Although deaths were not officially reported, the epidemiological bulletin reports that there were 4 reported deaths in 2014, which was an 80% decrease from the 20 deaths reported in 2000.

Figure 2. Number of cases and deaths due to malaria in Peru, 2000–2014



The Amazonian forest area has the highest incidence in the country, particularly in the region of Loreto, which reported 93.6% of all confirmed cases in 2014 (Figure 3). The most common vector in the Amazon area is *An. darlingi*. *Plasmodium vivax* is the main malaria-causing

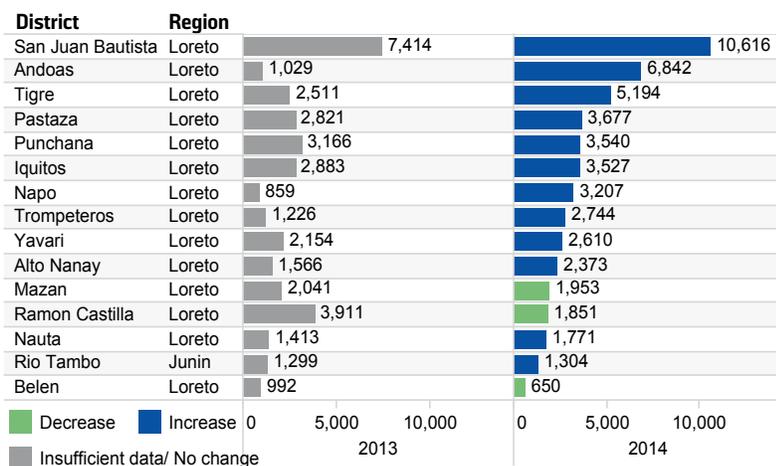
Figure 1. Malaria by Annual Parasite Index (API) at region and district levels (ADM1 and ADM3), Peru 2014



Peru reported ADM3 data for Amazonas, Ayacucho, Cusco, Junin, Loreto, and San Martin while reporting ADM1 for the rest of the regions.

species, accounting for 83.1% of all cases in the country. *P. falciparum* accounts for about 16.9% of malaria cases and is mostly limited to Loreto where almost all (99.6%) of infections due to this species were reported. Located in Loreto region, Alto Nanay (850.8 cases per 1,000 people), Tigre (621.6 cases per 1,000 people), and Pastaza (573.5 cases per 1,000) were the districts with the highest malaria incidence in the country. Malaria has increased alarmingly in Loreto. Although initially, floods and associated environmental changes were believed to

Figure 3. Districts with the highest number of malaria cases in Peru, 2013–2014



be related to this increase lately, the lack of vector control interventions and inadequate surveillance quality with low supervision are reasons for the continued increase in that region. On the other hand, malaria has decreased in the region of Tumbes after an outbreak during 2010–2012, reporting only 1 case in 2013 and none in 2014.

Men are more affected by malaria than women, making up 53.7% of all cases in 2014 and having an incidence rate higher than that in women (176 cases per 100,000 men vs. 137 cases per 100,000 women) (Figure 4). Young children between the ages of 5–9 had the highest malaria incidence (Figure 5). Since children would most likely spend much more time at home as would pregnant women, it is presumed that both would have similar risk of having malaria. However, the malaria in pregnancy incidence was lower than that in non-pregnant women of child-bearing age (94 cases vs. 115 cases per 100,000 women). This indicates under-diagnosis of pregnancy status in malaria cases in women; improvement in surveillance quality is thus necessary in the country.

Figure 4. Malaria cases by age and sex in Peru, 2014

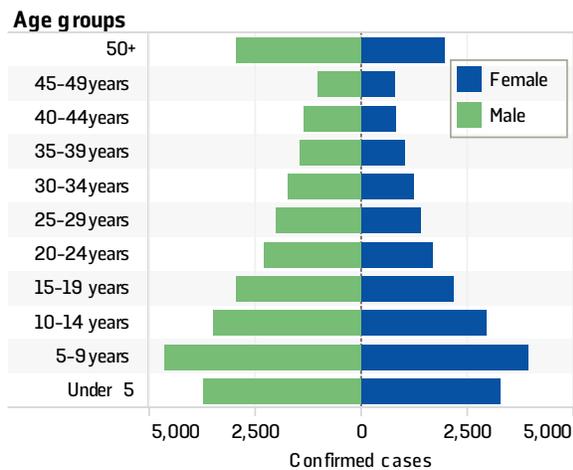


Figure 5. Malaria incidence by age and sex in Peru, 2014

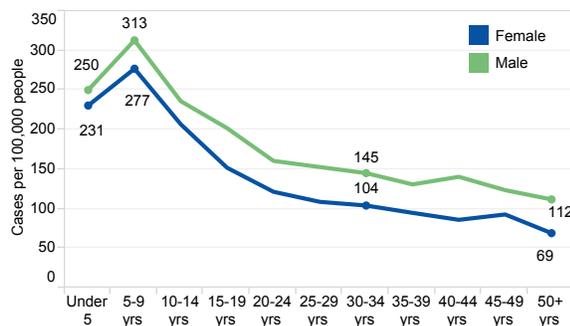
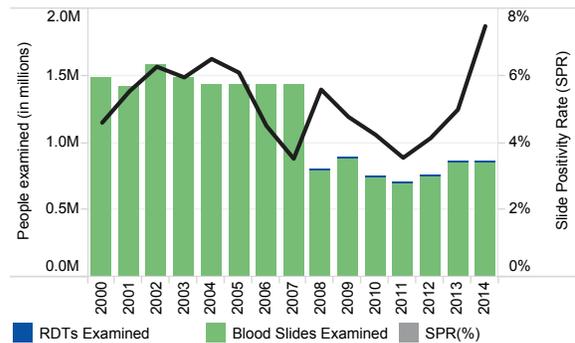


Figure 6. Blood slides examined, RDTs examined, and SPR in Peru, 2000-2014



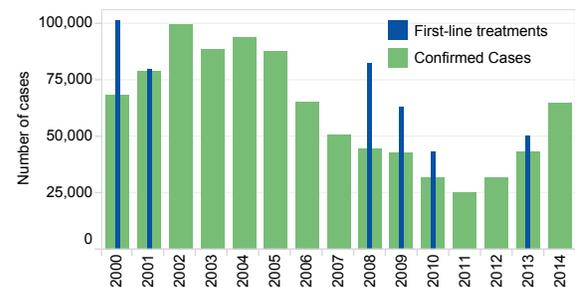
Diagnosis and Treatment

Microscopy has been the main method of diagnosis in Peru, though RDTs were introduced in 2010 (Figure 6). The SPR was 7.5 in 2014 and has been increasing since 2011. Chloroquine and primaquine (0.5 mg/kg/day for 7-day course) is the first-line treatment for *P. vivax* infections. Artesunate and mefloquine therapy along with primaquine is used as the first-line treatment for *P. falciparum*. Although data is not available for many years, consumption of antimalarials has always been higher than the number of reported cases (Figure 7).

Vector Control

Peru has significantly increased its ITN coverage in 2014, protecting more than 68,000 people (Figure 8). IRS is also used as a vector control intervention protecting 107,315 people. Tests conducted in 2013 found confirmed resistance in *An. albimanus* to pyrethroid insecticides in Bagua Grande in Amazonas, Bellavista in San Martin, and also in the region of Cajamarca.

Figure 7. Number of malaria cases and those treated with first-line treatment in Peru, 2000-2014



*First-line treatment data is unavailable for 2001, 2009, 2010, 2013, 2014.

Funding

The government has provided the majority of malaria funding, although data for 2014 were not available (Figure 9). The AMI/RAVREDA initiative has also provided additional funding since the start of the project in 2002. These funds have contributed primarily towards improving surveillance and antimalarial sensitivity monitoring. The PAMAFRO project, supported by the Global Fund, also provided additional malaria support during 2007-2010.

Figure 8. People protected by IRS and by ITNs in Peru, 2000-2014

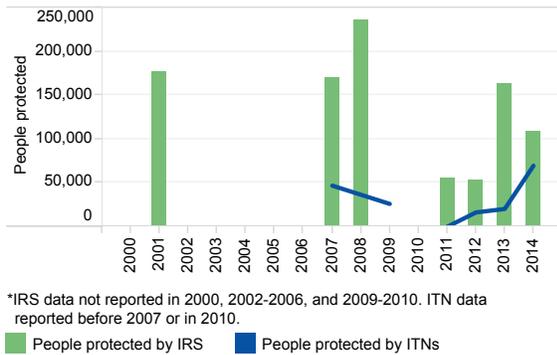


Figure 9. Funding for malaria in Peru, 2000-2014

