Working to overcome the global impact of neglected tropical diseases

Update 2011

World Health Organization

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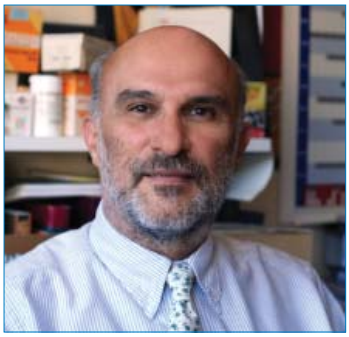
Contents

Message from the Director



One year on and accelerating work to overcome neglected tropical diseases

It is a year to the day since the World Health Organization (WHO) published its first report on neglected tropical diseases. Almost always out of sight and rarely in news headlines, neglected tropical diseases are found exclusively among poor populations in deprived rural communities. They cause misery and disability, sometimes life-long, to hundreds of millions of people worldwide.

Working to overcome the global impact of neglected tropical diseases, launched by WHO on 14 October 2010, provides evidence that existing safe, simple and effective interventions, implemented during the past seven years, are improving the health and quality of life of populations in 149 countries where many of the 17 diseases[1] occur. Approximately 90% of their burden can be treated with medicines administered only once or twice a year.

Evidence also demonstrates that control of neglected tropical diseases significantly reduces illness, social exclusion and mortality. Furthermore, prevention and control directly contributes to improved economic productivity and the achievement of several of the United Nations Millennium Development Goals.

In her address during the launch of the report, WHO Director-General Margaret Chan spoke of current "breakthrough" strategies to reduce the burden of these diseases. Accelerated efforts are needed to break the cycle of infection and disability, which mire people in poverty. Dr Chan challenged the international community to show greater resolve in control of these diseases, and to produce "results".

[1] The 17 neglected tropical diseases are: dengue, rabies, trachoma, Buruli ulcer (*Mycobacterium ulcerans* infection), endemic treponematoses, leprosy (Hansen disease), Chagas disease (American trypanosomiasis), human African trypanosomiasis (sleeping sickness), leishmaniasis, cysticercosis, dracunculiasis (guinea-worm disease), echinococcosis, foodborne trematode infections, lymphatic filariasis, onchocerciasis (river blindness), schistosomiasis (bilharziasis) and soil-transmitted helminthiases.

Today, we are continuing to make significant progress against neglected tropical diseases, some of which maim, cause anaemia, stunt children's growth and compromise pregnancy outcomes. It is now known that urogenital schistosomiasis in women causes long-term irreversible consequences, including infertility. Many women in areas endemic for urogenital schistosomiasis have female genital schistosomiasis. There is also the plausibility of a possible link between female genital schistosomiasis and HIV acquisition in women. An increase in coverage of large-scale preventive treatment (preventive chemotherapy) for schistosomiasis will significantly decrease morbidity. and may prevent transmission of HIV and other sexually transmitted infections.

Provisional figures show that of the estimated 32 million people who were treated for schistosomiasis worldwide in 2010, 28 million were in sub-Saharan Africa, where the disease is widely distributed. Results of recent surveys conducted in Morocco, using the most sensitive diagnostic techniques, show that none of the 2300 children aged under 16 years from formerly endemic areas had been re-exposed to the infection, confirming the interruption of transmission of urogenital schistosomiasis. No screened vector snails harboured the parasite.

> "Despite a difficult economic outlook, we believe that immense opportunities exist for investing in the health of poor populations to improve their health and reduce poverty. With a firmer resolve and the right interventions, WHO is confident that the burden of many of these diseases will be substantially reduced or eliminated by 2020."

Dr Lorenzo Savioli
Director
Department of Control of Neglected Tropical Diseases
World Health Organization

We are now on the verge of eradicating dracunculiasis, the first parasitic disease to be wiped out. To bolster the final phases of eradication, and despite the global financial crisis, on 5 October 2011 the Government of the United Kingdom announced a challenge grant of UK£ 20 million (approximately US$ 32 million) to enable The Carter Center and WHO to finish the job. This pledge is widely expected to encourage other donors to come forward and match the additional funding required. Under current conditions, WHO and The Carter Center estimate that at least USD$ 70 million is needed to achieve complete interruption of transmission by 2015 in the four countries where cases are still occurring. A further mandatory period of three years is needed from the time the last country interrupts transmission to certify eradication.

Significant progress has been made for other neglected tropical diseases for which active surveillance and individualized treatment are required. The introduction of combination antibiotic therapy has reduced by about 30% the need for surgery for people affected by Buruli ulcer.

Systematic screening and treatment of at-risk populations have reduced cases of human African trypanosomiasis (sleeping sickness) to their lowest level

in 50 years. In 2010, there were 7139 new cases, compared with 9878 cases in 2009, a decrease of 28% in just one year.

Sustained vector control has largely contributed to reducing transmission of Chagas disease in Latin America and has helped save millions from chronic impairments. Between 2007 and 2010, 2 million nifurtimox tablets were distributed for second-line treatment. During the same period, 30 000 patients in endemic countries received first-line treatment with benzidazole. Moreover, WHO is leading a global awareness campaign in response to the spread of Chagas disease outside Latin America. An informal non-endemic countries initiative for addressing this problem was established in 2007.

Immediate intervention by WHO in providing medicines, logistics and support during an outbreak of visceral leishmaniasis in South Sudan in 2010 and early 2011 enabled the treatment of 60% of the total 12 000 patients; the case-fatality rate was 5% compared with that of 95% in the 1990s. Early and appropriate treatment averts death from visceral leishmaniasis or the stigma of cutaneous leishmaniasis. Regional control programmes, particularly on the Indian subcontinent, have strengthened capacity-building, access to medicines and surveillance over the past five years. Similar programmes have now been launched in the Region of the Americas, the Eastern Mediterranean Region and the European Region.

Today, dengue ranks as the most important mosquito-borne viral disease in the world, with nearly 3 billion people at risk in over 100 countries. A WHO survey in 2010 revealed that since 2005, the WHO-recommended policy of integrated vector management has been adopted in 68 of 110 participating countries. This integrated vector management approach for dengue has benefitted more than 20 million people in three WHO regions (the Western Pacific Region, the South-East Asian Region and the Region of the Americas). WHO also supports capacity-building for clinical management of severe dengue cases in all regions.

WHO advocates integrated vector management as an approach to control dengue fever, Chagas disease and lymphatic filariasis. In early 2011, WHO published a position paper on *Integrated Vector Management to control lymphatic filariasis and malaria*, which promotes the integrated use of effective vector control measures to control and eliminate lymphatic filariasis in areas in central Africa where *Loa loa* is concurrently endemic.

Management of pesticides used in public health is a priority for WHO as integrated vector management emerges as the major component of a strategy to facilitate the sustainable use of pesticides and the reduction of associated health risks. Between 2008 and 2010, the WHO Pesticide Evaluation Scheme (WHOPES) supported 13 WHO Member States to develop national action plans for sound management of pesticides for public health. Furthermore, standards of pesticide quality developed by WHOPES are currently being used in 96 countries where vector-borne diseases are endemic.

WHO has provided technical expertise to support pilot projects in eliminating human and canine rabies in KwaZulu Natal (South Africa), the United Republic of Tanzania and the Visayas archipelago in the Philippines. The projects aim to demonstrate that human rabies can be prevented in different settings by controlling the disease in dogs. Preliminary results in June 2011 show that for the first time, zero cases of human rabies have been reported for 12 consecutive months. The number of human rabies cases is also decreasing in the western Visayas in the Philippines. Since the start of the project, more than 4 million doses of dog rabies vaccines have been provided to the three areas for mass vaccination. As part of the project, and for the first time in Africa, an economical regimen for post-exposure prophylaxis (PEP) has been introduced and incorporated into the Tanzania national PEP guidelines.

There is an increasing need for greater involvement of public-health veterinarians at the animal–human interface as much of the morbidity and mortality resulting from neglected tropical diseases has a major zoonotic component. Veterinary public health is supporting a paradigm shift in global approaches to the control of diseases originating at the animal–human interface, emphasizing control at the animal source.

In July 2011, WHO organized an interagency meeting with the Food and Agriculture Organization of the United Nations and the World Organization for Animal Health to define a "priority neglected zoonotic diseases investment portfolio" and formulate a roadmap to tackle them. The minimum investment required is estimated at US$ 20 million a year for the 5-year period 2012–2016.

WHO continues to advocate free and timely access to high-quality medicines and preventive diagnostic tools through an intersectoral, interprogrammatic approach and the consolidation of partnerships and resource mobilization. It has long advocated the need for donations of essential medicines to enable wider access to treatment for poor populations. Pharmaceutical companies responded favourably to the Director-General's call for an increase in donated medicines during the October 2010 launch of the report by making important pledges. We can now proudly say that almost all of these pledges have been confirmed.

Control of neglected tropical diseases today relies on two pillars: access to treatment with safe and effective medicines available free of charge to affected populations, and judicious use of pesticides for vector control. Although prospects for scaling-up interventions look promising, there are challenges that remain.

Many countries where soil-transmitted helminthiases are endemic have not attained the target set for 2010 by World Health Assembly resolution WHA54.19, and adopted in 2001, to treat at least 75% of school-aged children at risk of morbidity. In 2009, only 31% of all children at risk of soil-transmitted helminthiases received preventive chemotherapy treatment.

With the projected greater availability of funding and donated medicines, WHO plans to scale up integrated preventive treatment of soil-transmitted helminthiases and schistosomiasis to reach a minimum of 75% coverage of all children by 2020.

WHO estimates that US$ 1.7 billion may be needed over the next 5 years to treat all populations at risk of contracting one of the following neglected tropical diseases: lymphatic filariasis, onchocerciasis, soil-transmitted helminthiases (ascariasis, hookworm infections and trichuriasis), schistosomiasis and trachoma. Supplies of donated medicines such as praziquantel and funds for its production are currently insufficient to meet demand for the control of schistosomiasis, which affects more than 240 million people worldwide. Two billion tablets might be required over the next 5 years. This means that the amount of donated praziquantel needs to increase at least 10–20 times to increase coverage in Africa at a level similar to that of other donated medicines. Today, praziquantel is the only commercially available treatment for human schistosomiasis. It is currently off patent, and most of the active pharmaceutical ingredient is produced in China.

There is also a need for additional treatment facilities to be made available for complex diseases. This will require health-care systems to provide wider access to available medicines and increased capacity for surgical interventions. Success in controlling visceral leishmaniasis involves an increase in capacity for early case-finding and timely delivery of oral treatment.

With cases of human African trypanosomiasis at their lowest level in 50 years, there is need now more than ever to maintain sustained control and surveillance activities using the best, albeit imperfect, tools available. We must ensure that endemic countries integrate surveillance activities in their services while retaining the capacity to react rapidly to the results of surveillance outcomes. Lesson learnt from the past should be heeded: in the 1980s, the disease re-emerged in many regions after decades of successful control activities.

Control of Chagas disease requires the strengthening of the current global epidemiological surveillance to prevent all forms of transmission and detection. Although nifurtimox is provided free of charge through WHO to all endemic countries, securing adequate provision of benznidazole poses a major challenge.

For Buruli ulcer, specific approaches such as community education and awareness campaigns need to be developed to encourage early reporting and detection, and enable timely intervention. The introduction in 2006 of combination antibiotic therapy to treat the early stages of the infection has shown promising results.

Feasible and complete interruption of yaws transmission has not been achieved because control programmes were halted in many endemic countries. Active case-finding and a single injection of benzylpenicillin are

sufficient to cure the disease and reduce transmission of its pathogen. The main challenge remains the epidemiological assessment and implementation of control activities in WHO's African Region.

Another area of challenge is sustaining new methods of vector control, as evidenced by recent dengue outbreaks in various regions of the world. More resources are needed to scale up activities at the country level and to develop a new global strategic plan for dengue prevention and control.

Despite a difficult economic outlook, we believe that immense opportunities exist for investing in the health of poor populations to improve their health and reduce poverty. With a firmer resolve and the right interventions, WHO is confident that the burden of many of these diseases will be substantially reduced or eliminated by 2020.

Director
Department of Control of Neglected Tropical Diseases
World Health Organization

- GlaxoSmithKline (GSK) is expanding their donation of albendazole by 400 million tablets a year over the next 5 years starting in 2012. This additional donation mainly aims to treat children for intestinal worms and comes on top of the 600 million tablets of albendazole from GSK already being used in the Global Programme to Eliminate Lymphatic Filariasis. Combined, this latest increase brings to 1 billion the annual number of albendazole tablets donated by GSK.

- Sanofi renewed in March 2011 its agreement to donate an unlimited quantiry of eflornithine, melarsoprol and pentamidine for the treatment of human African trypanosomiasis. It is also contributing US$25 million over a period of five years (2011-2016) to support WHO's human African trypanosomiasis control programme. Sanofi-aventis also supports control programmes for other difficult-to-treat diseases such as Buruli ulcer, Chagas disease, leishmaniasis and yaws.

- Bayer signed an agreement with WHO on 4 March 2011 increasing its donation of nifurtimox from its current 2.5 million tablets over five years to 5 million tablets until 2017. This is meant for the treatment of Chagas disease and human African trypanosomiasis. Bayer which also donates an unlimited quantity of suramin for human African trypanosomiasis (HAT) will continue its cash contribution to fund logistics and distribution of medicines.

- Johnson & Johnson is expanding its current donation of 50 million treatments of mebendazole per year to 200 million annually.

- Novartis is continuing to donate multidrug therapy (rifampicin, clofazimine and dapsone in blister packs) and loose clofazimine to all leprosy patients worldwide until the end of 2015. The company is also donating triclabendazole for the treatment of fascioliasis - an animal infection caused by parasitic flatworms that is transmitted to humans.

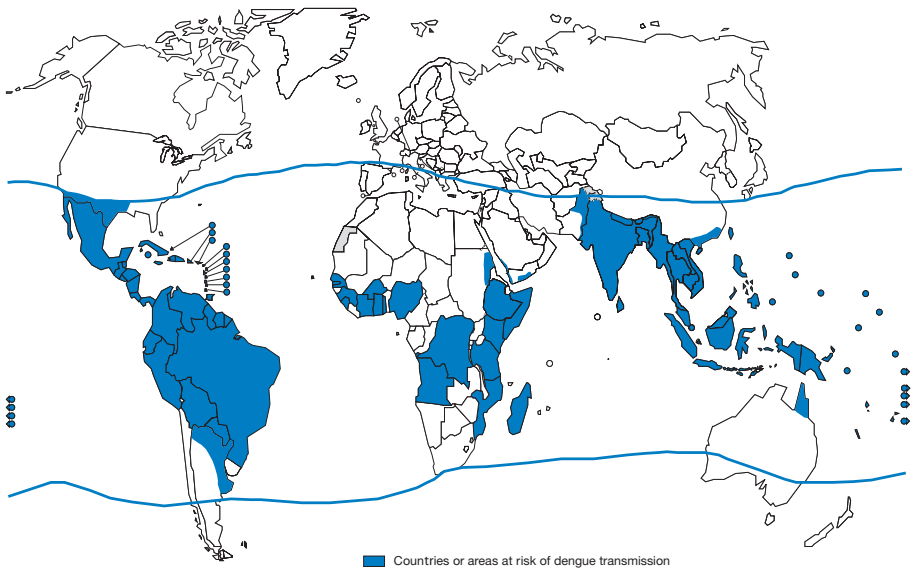
- Pfizer will continue to donate an unlimited quantity of azithromycin for the treatment of trachoma while Merck & co. Inc gives an unlimited supply of ivermectin for as long as needed directly to countries for lymphatic filariasis and onchocerciasis.

- Another landmark donation is that of praziquantel from Merck KGaA which is currently making available to WHO 200 million tablets for the control of schistosomiasis until 2017.

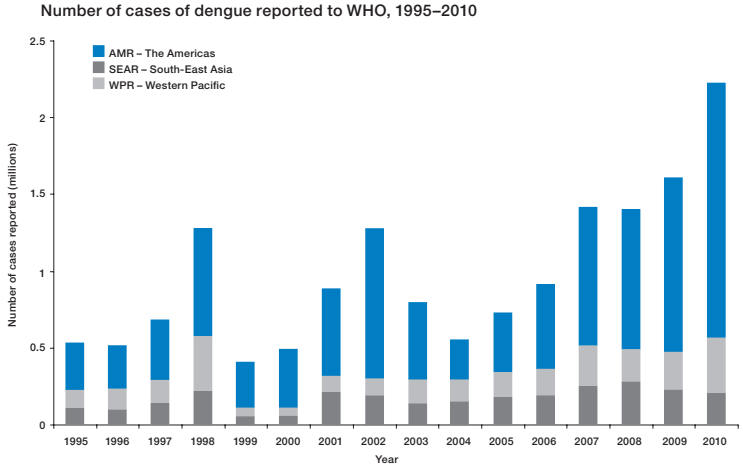
Neglected tropical diseases in the world today

Dengue

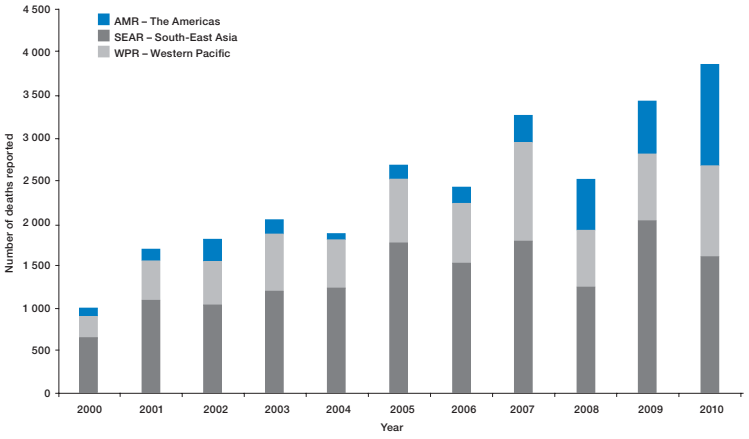
Distribution of countries or areas at risk of dengue transmission, worldwide, 2010



Number of cases of dengue reported to WHO, 1995–2010

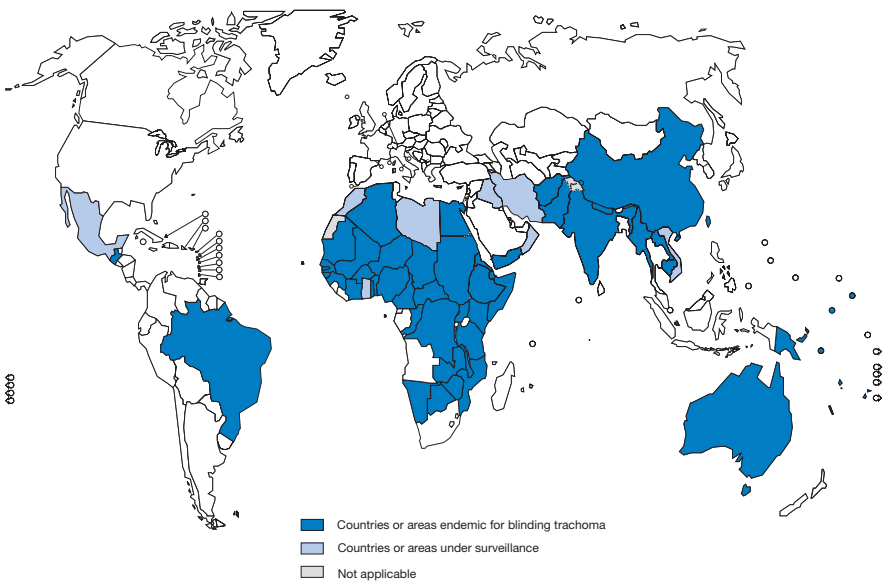


Number of dengue deaths reported to WHO, 2000–2010

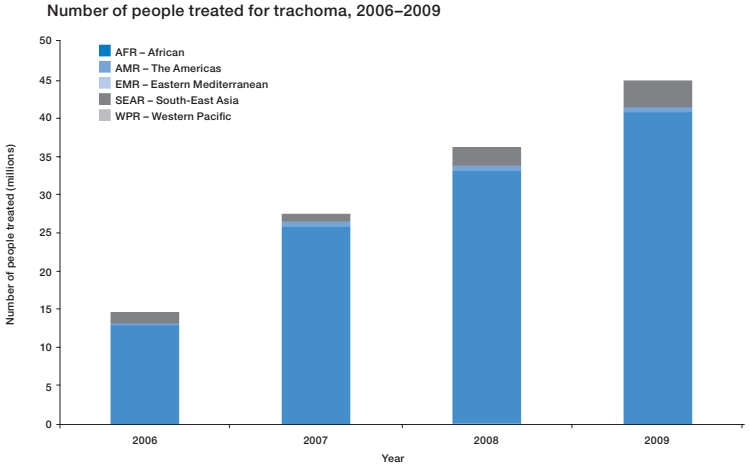


Trachoma

Distribution of trachoma, worldwide, 2010



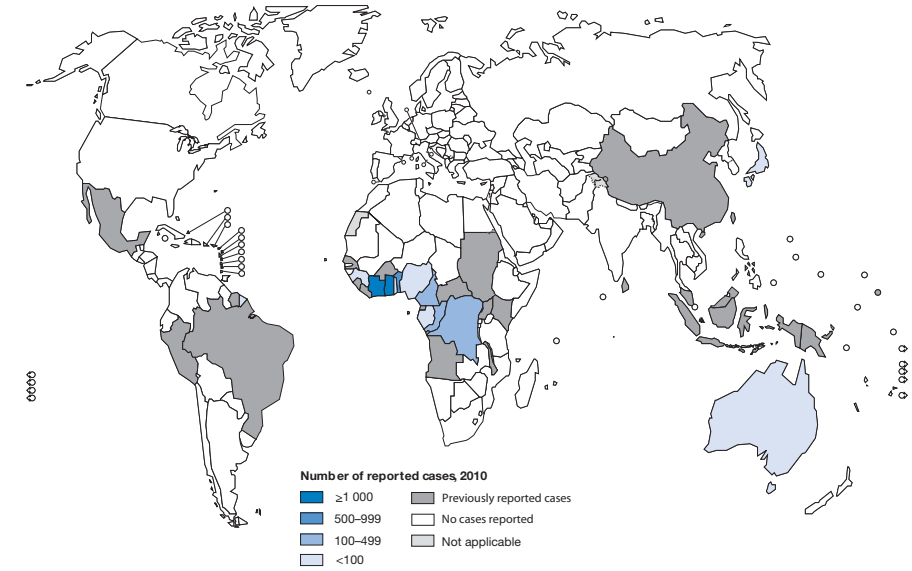
Number of people treated for trachoma, 2006–2009



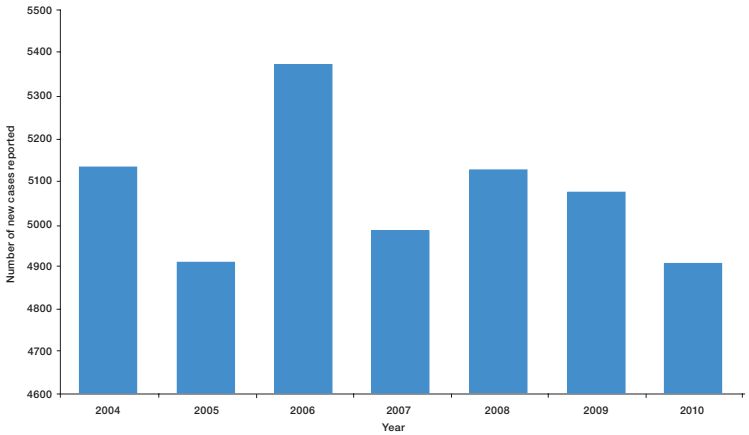
WHO Region	AFR	AMR	EMR	SEAR	WPR	Global
Number of people treated in 2009	40 936 310	60 000	691 296	3 251 697	10 000	44 949 303

Buruli ulcer (*Mycobacterium ulcerans* infection)

Distribution of Buruli ulcer, worldwide, 2010

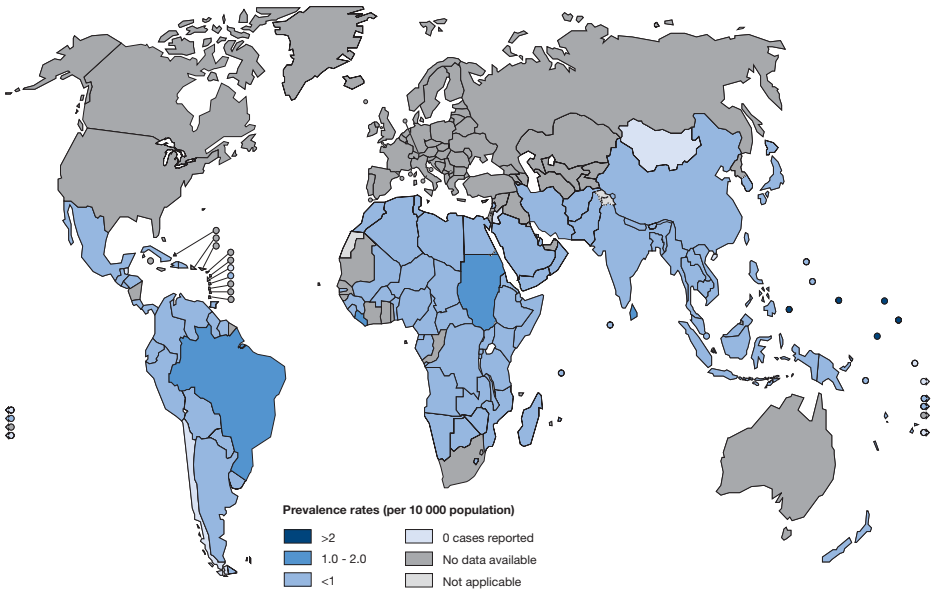


Global number of new cases of Buruli ulcer reported to WHO, 2004–2010

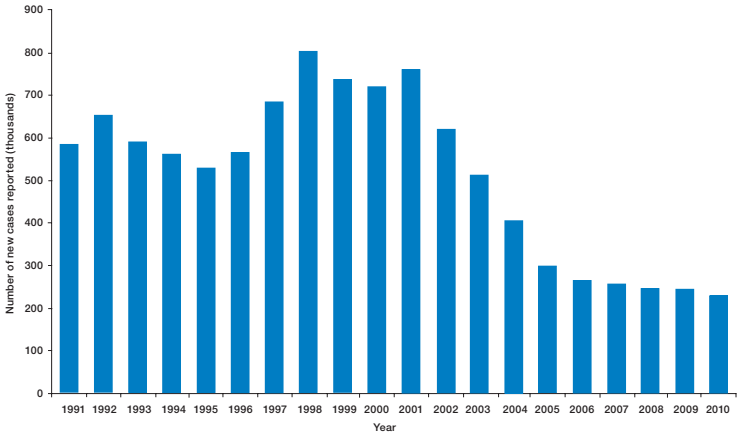


Leprosy (Hansen disease)

Leprosy prevalence rates, data reported to WHO as of beginning January 2011

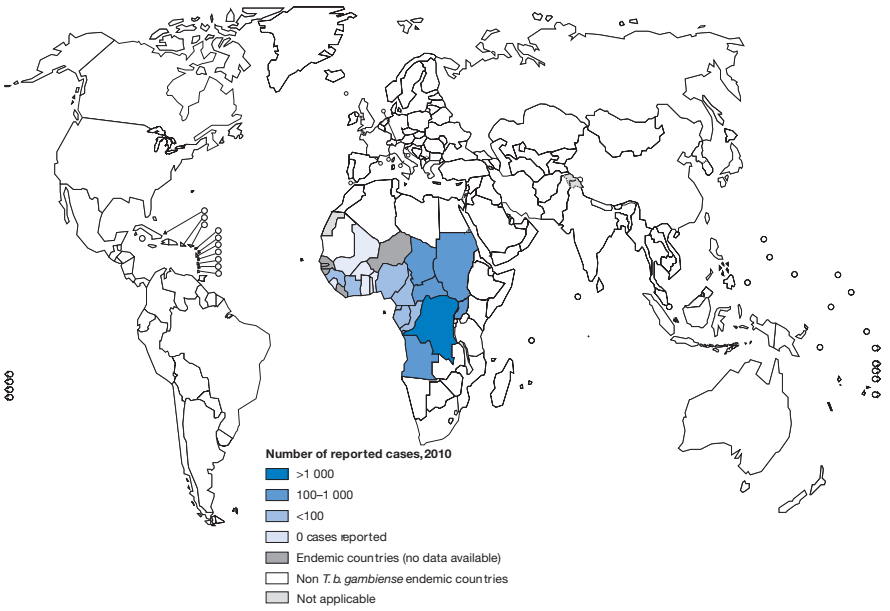


Global number of new cases of leprosy reported to WHO, 1991–2010

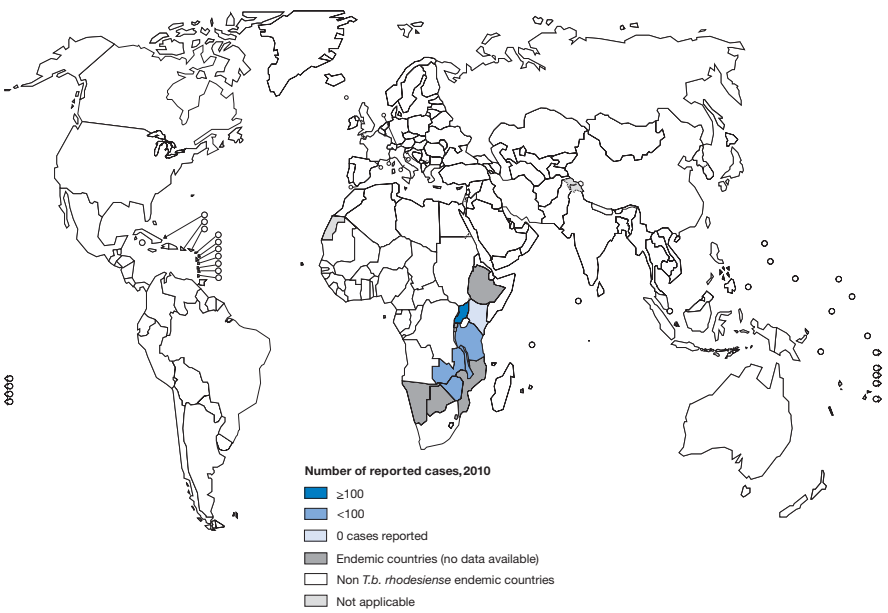


Human African trypanosomiasis (Sleeping sickness)

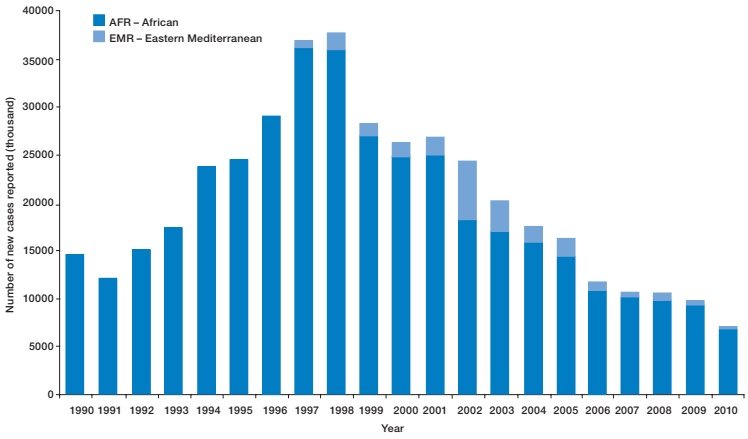
Distribution of human African trypanosomiasis (*T.b. gambiense*), worldwide, 2010



Distribution of human African trypanosomiasis (*T.b. rhodesiense*), worldwide, 2010



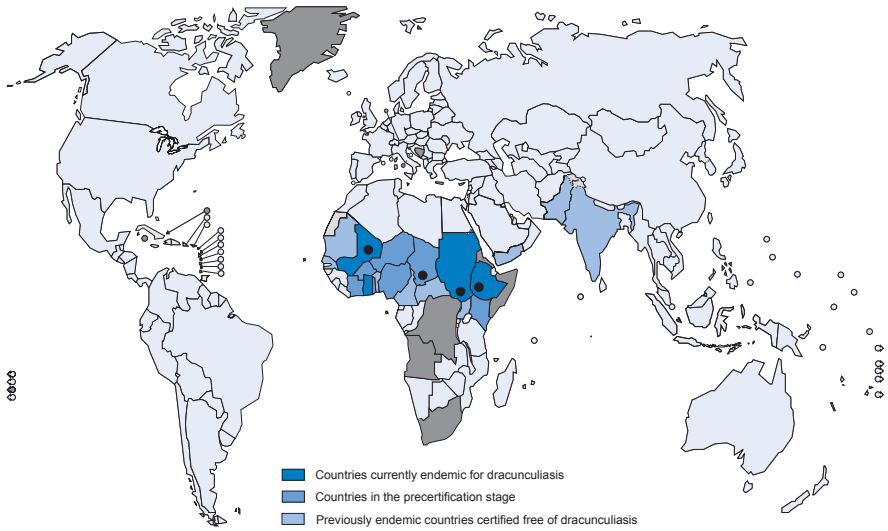
Global number of new cases of human African trypanosomiasis reported to WHO, 1990–2010



WHO Region	AFR	EMR	Global
Total number of new cases reported in 2010	6 939	200	7 139

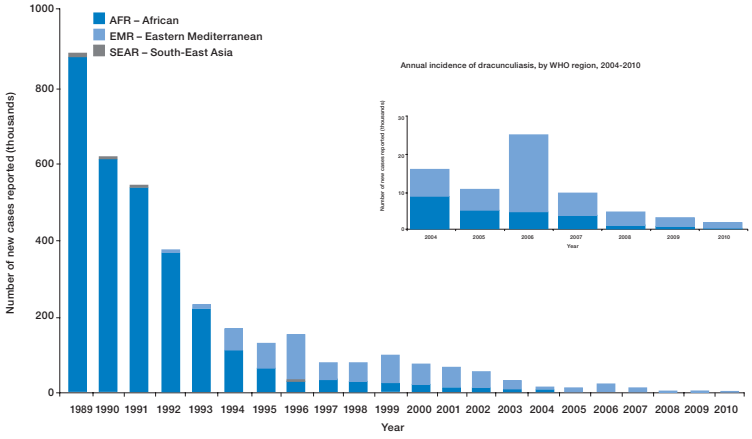
Dracunculiasis (guinea-worm disease)

Status of dracunculiasis eradication, worldwide, as of June 2011



Note: Chad - country in the precertification stage had an outbreak since 2010

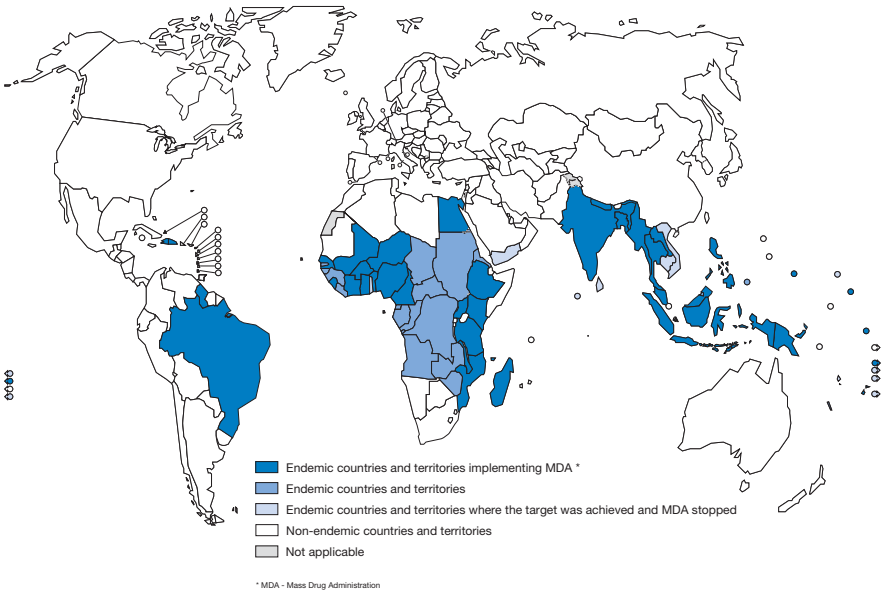
Annual incidence of dracunculiasis, by WHO region, 1989-2010



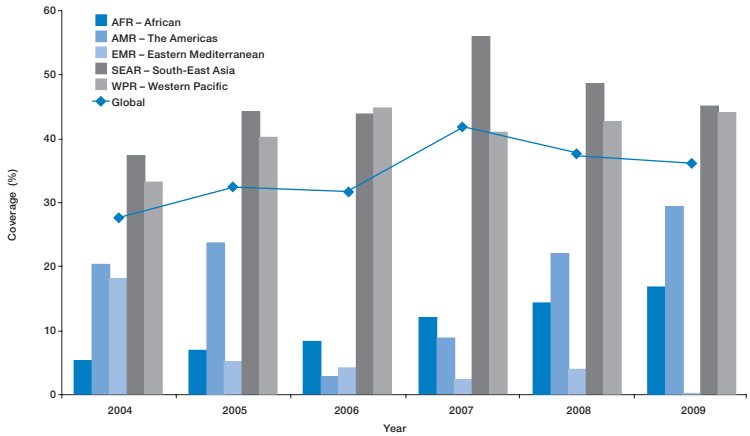
WHO Region	AFR	EMR	SEAR	Global
Total number of new cases reported in 2010	99	1 698	0	1 797

Lymphatic filariasis

Distribution and status of preventive chemotherapy for lymphatic filariasis, worldwide, 2010



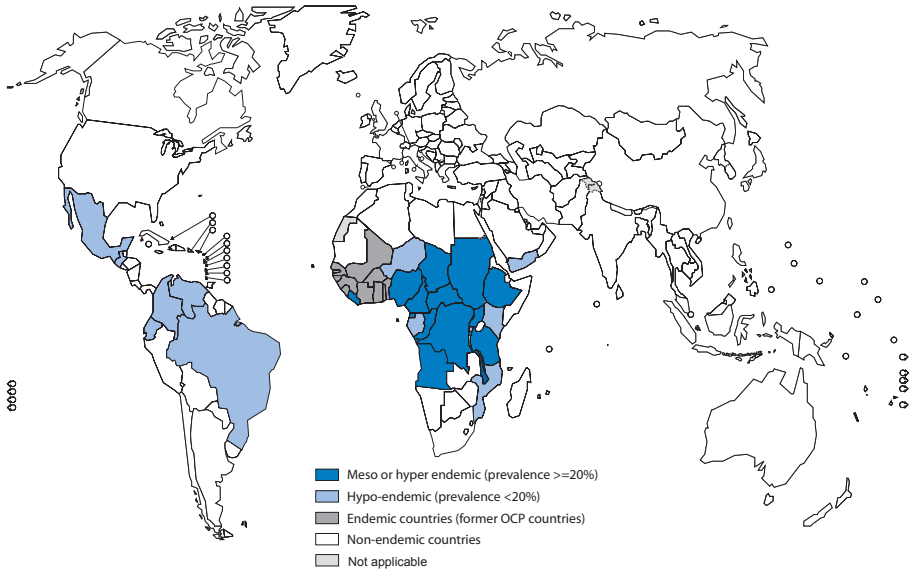
Reported coverage of treatment for lymphatic filariasis, by WHO region, 2004–2009



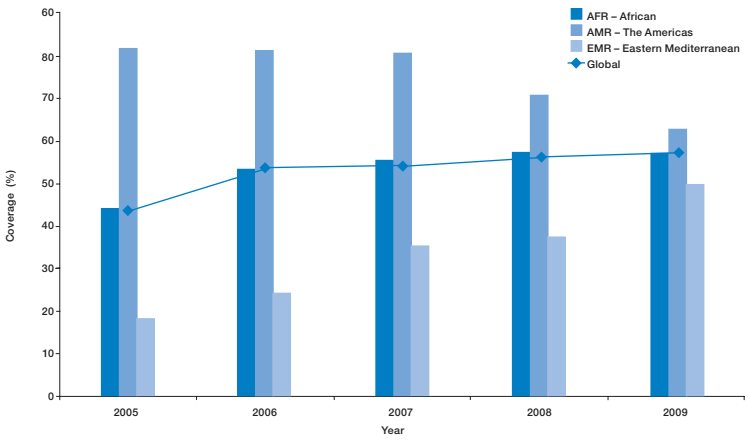
WHO Region	AFR	AMR	EMR	SEAR	WPR	Total
Number of people treated in 2009	69 131 743	3 364 031	25 000	395 934 743	16 774 365	485 229 882

Onchocerciasis (river blindness)

Distribution of onchocerciasis, worldwide, 2010



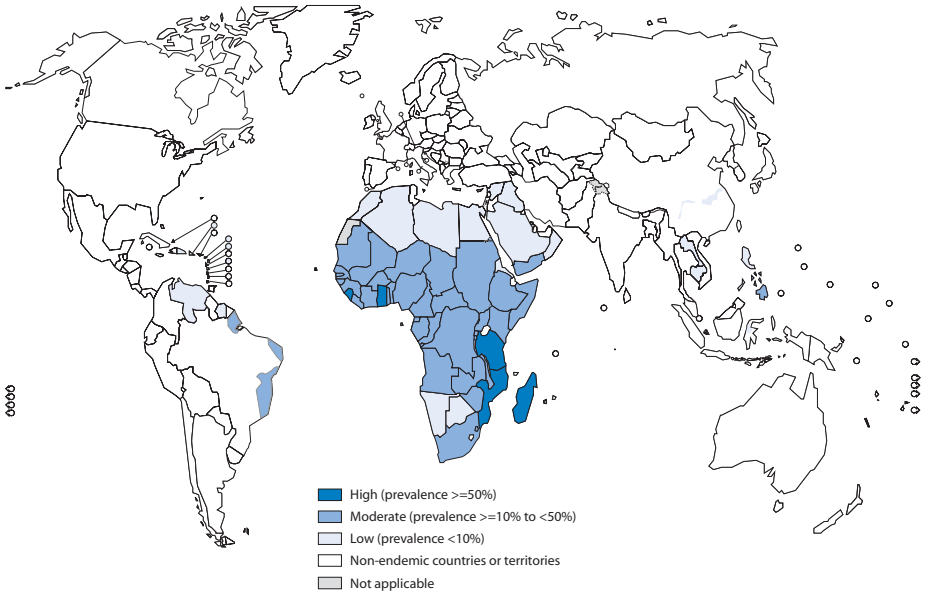
Reported coverage of treatment for onchocerciasis, by WHO region, 2005–2009



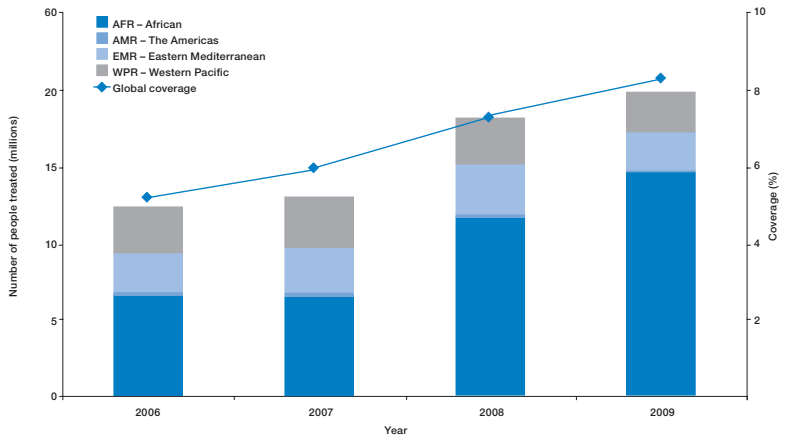
WHO Region	AFR	AMR	EMR	Global
Number of people treated in 2009	65 408 388	314 444	3 011 429	68 734 261

Schistosomiasis (bilharziasis)

Distribution of schistosomiasis, worldwide, 2010



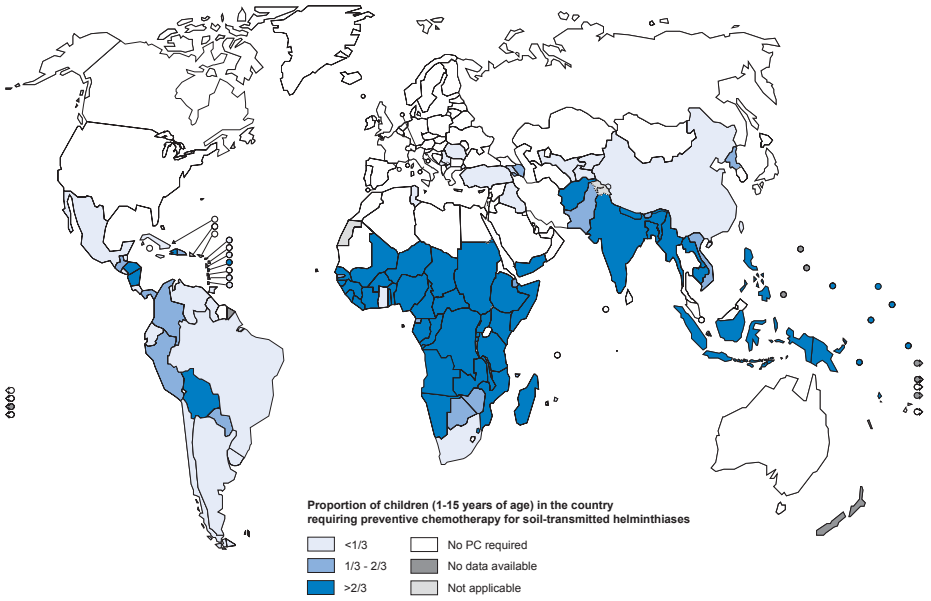
Number of people treated for schistosomiasis and reported treatment coverage, by WHO region 2006–2009



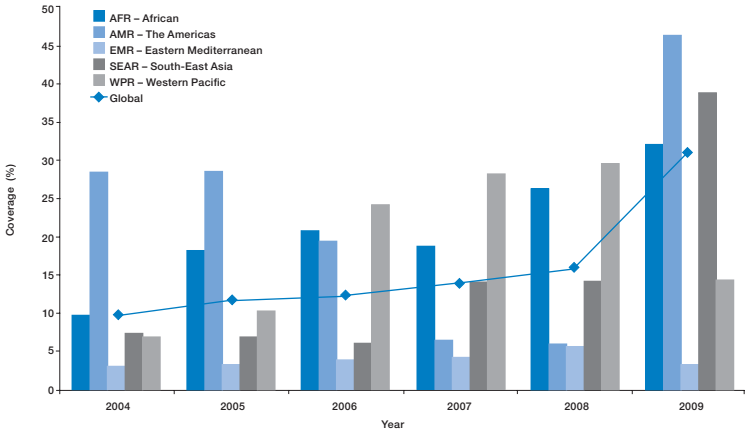
WHO Region	AFR	AMR	EMR	WPR	Total
Number of people treated in 2009	14 735 638	30 418	2 551 316	2 642 207	19 959 579

Soil-transmitted helminthiases

Distribution of soil-transmitted helminthiases, worldwide, 2010



Reported coverage of treatment for soil-transmitted helminthiases, by WHO region, 2004–2009



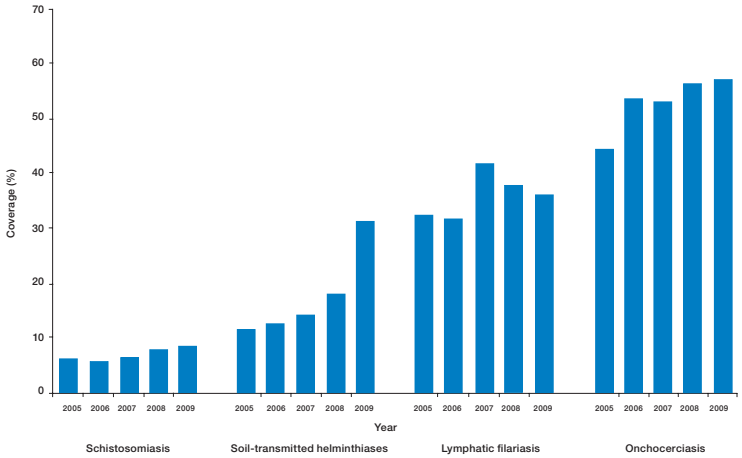
WHO Region	AFR	AMR	EMR	EUR	SEAR	WPR	Total
Number of people treated in 2009	103 186 098	39 160 613	2 513 093	789 413	154 139 343	14 304 492	314 093 053

In the WHO European region 11 countries are endemic. Interventions are not done every year.

New estimates of people requiring PC for STH – Soil-transmitted helminthiases: estimates of the number of children needing preventive chemotherapy and number treated, 2009. WER, N°25, 2011, 86:257–268.

Preventive chemotherapy for helminthiases

Global coverage (%) of preventive chemotherapy for schistosomiases, soil-transmitted helminthiases, lymphatic filariasis and onchocerciasis



Global coverage shown is the proportion of the population requiring preventive chemotherapy that has been treated. For soil-transmitted helminthiases (STH) target population is children aged from 1 year to 15 years.

Source: WHO preventive chemotherapy and transmission control databank (available at *http://www.who.int/neglected_diseases/preventive_chemotherapy/databank/en/*).

WHO region	Number of countries reporting to WHO	Number of people treated for				Number of people reached by preventive chemotherapy for at least one disease
		Lymphatic filariasis	Soil-transmitted helminthiases	Schistosomiasis	Onchocerciasis	
African	34	69 131 743	103 186 098	14 735 638	65 408 388	200 788 299
Americas	17	3 364 031	39 160 613	30 418	314 444	40 934 175
Eastern Mediterranean	7	25 000	2 513 093	2 551 316	3 011 429	5 699 204
European	2		789 413			789 413
South-East Asia	7	395 934 743	154 139 343			428 623 308
Western Pacific	10	16 774 365	14 304 492	2 642 207		28 250 061
GLOBAL	**77**	**485 229 882**	**314 093 053**	**19 959 579**	**68 734 261**	**705 084 460**

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