DRACUNCULIASIS
LYMPHATIC FILARIASIS
ONCHOCERCIASIS
SCHISTOSOMIASIS
CYSTICERCOSIS
TREMATODE INFECTIONS
SNAKEBITES
ECHINOCOCCOSIS
TRACHOMA
CHAGAS DISEASE
LEPROSY
DENGUE
RABIES
BURULI ULCER
LEISHMANIASIS
HUMAN AFRICAN TRYPANOSOMIASIS
ENDEMIC TREPONEMATOSES
SKABIES AND ECTOPARASITES
MYZETOMA, CHROMOBLAS-TOMYCOSIS
GEOHELMINTHOSES
NOMA

BNITM
Bernhard-Nocht-Institut für Tropenmedizin

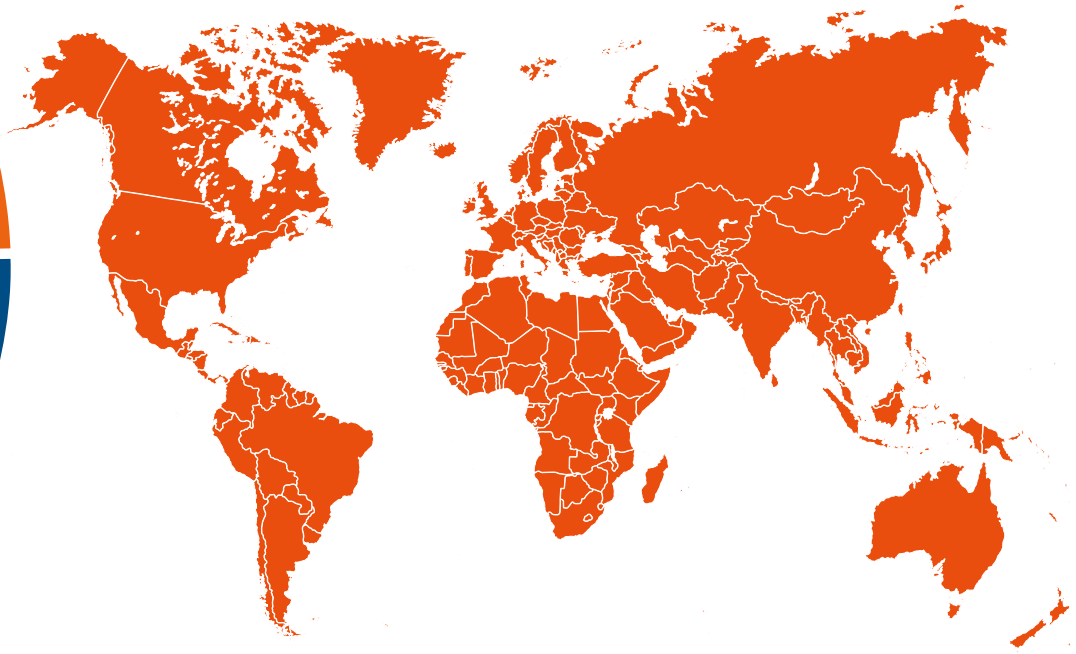
DEUTSCHES NETZWERK
gegen vernachlässigte Tropenkrankheiten (DNTDs)

DTG

DEUTSCHE GESELLSCHAFT FÜR PARASITOLOGIE e.V.

An assessment of German institutions' contribution to

RESEARCH ON NEGLECTED TROPICAL DISEASES



ANNEX

SPONSORED BY THE

Federal Ministry of Education and Research

CONTENT

I. PATENTS SUMMARY

The included patents are listed below, overall 112 patents were considered in the scope of the analysis, systematically searched via the *Questel Orbit Intelligence FAMPAT* database, carried out by the Hamburg Chamber of Commerce.

The IPC Innovation and Patent Centre conducted patent searches for the Bernhard Nocht Institute on the topic of NTDs. They represent an update of the patent searches carried out in 2018 according to the same pattern.

A search was carried out for patent publications containing specific keyword combinations relating to 20 different 'Neglected tropical diseases' (in the title, abstract, claims of the publications of all patent family members, if available in the database used, in the original language or in the English machine translation). The search strategies are given in the sections for the individual NTDs. For this purpose, all patent publications available in the *Questel Orbit Intelligence FAMPAT* database were searched. Details on databases can be found at

https://static.orbit.com/imagination/orbit_welcome/prd/coverage/coverage.htm

The search was limited to patent publications published for the first time between 2018 and 2022 patent whose applicants are based in Germany. The patent search was based on the disease specific search syntaxes reviewed by the contributing authors displayed in this annex on the pages 8-46. Following, the patent numbers derived by the systematic search are displayed in figure 1. Most of the retrieved patents are registered for multiple NTDs at once.

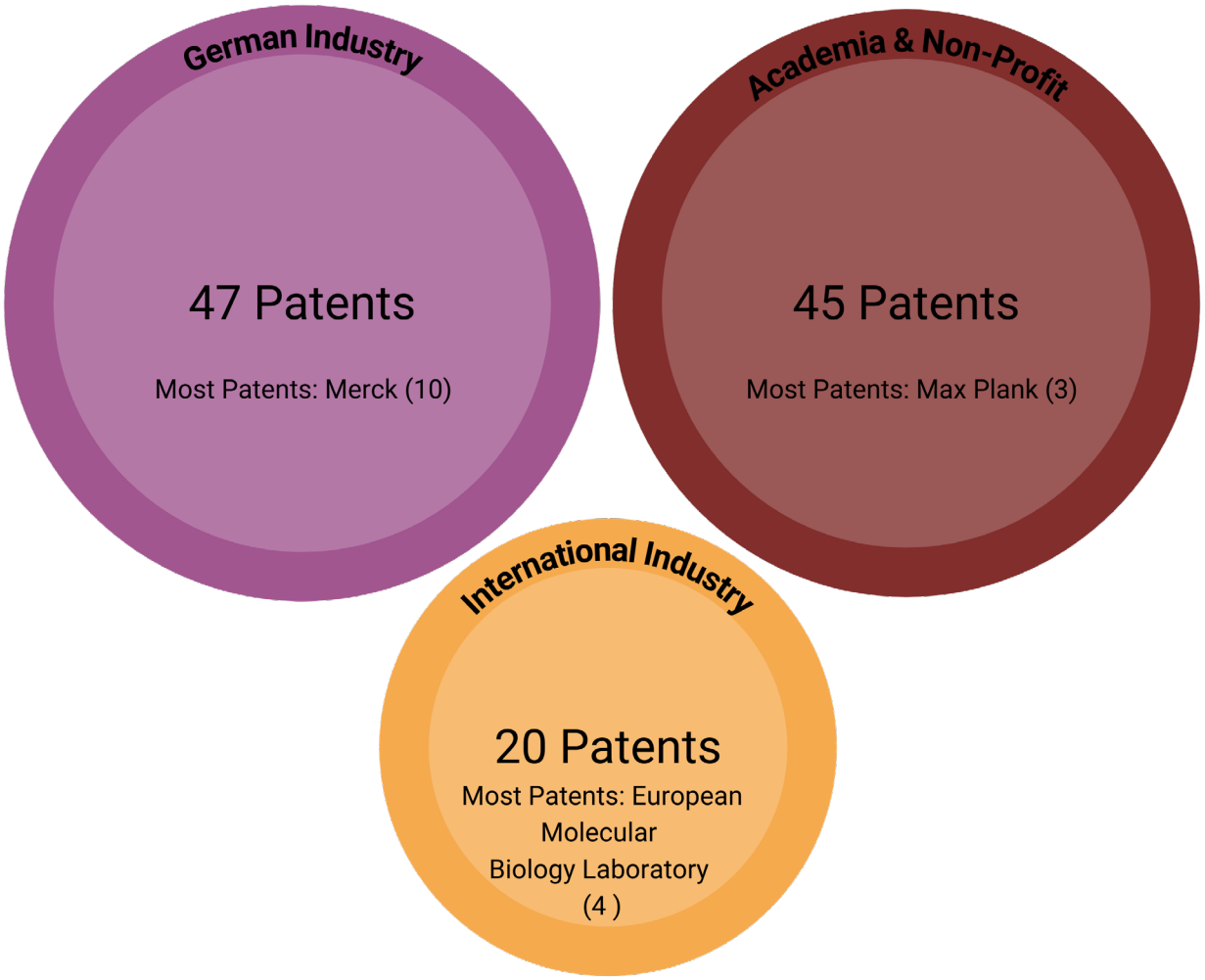


Figure 1: Patents aggregated by German industry, academia and non-profit organisations as well as international industry

Patent publication numbers of included patents:

EP3774809 A1	EP3661941 A1	WO2020239822 A1
EP3774810 A1	EP3957322 A1	EP3827076 A1
EP3524266 A1	DE102021000717 A1	EP3655392 A1
EP3823728 A1	EP3995592 A1	WO2018215638 A1
EP4054650 A1	WO202278775 A1	EP3679054 A1
EP4061828 A1	EP3312610 A1	WO2022135993 A2
EP3723796 A1	EP3845650 A1	EP3898587 A1
EP3834848 A1	EP3930707 A1	EP3830136 A1
EP3615553 A1	EP3481842 A1	EP3546455 A1
EP3532094 A1	EP3630094 A1	EP3768326 A1
EP3804750 A1	EP3995148 A1	WO2018229241 A1
EP3515504 A1	EP3781175 A1	WO2022228652 A1
EP3515920 A1	WO202263549 A1	EP4014991 A1
DE102018114467 A1	DE102018113988 A1	EP4014992 A1
EP3266454 A1	EP4138885 A1	EP4014990 A1
EP3574101 A1	EP3811969 A1	WO202289710 A1
EP3777835 A1	WO2022200276 A1	WO202278602 A1
DE102018002904 A1	EP3761029 A1	EP3974416 A1
EP3595715 A1	EP3994123 A1	EP3944877 A1
EP4076647 A1	EP3813841 A1	WO2021214320 A1
DE202018000465 U1	WO202290367 A1	EP3901168 A1
EP3914600 A1	WO2020263773 A1	WO2021175437 A1
EP3870582 A1	EP3768833 A1	EP3861857 A1
EP3870294 A1	EP3524237 A1	EP3838269 A1
WO2022129210 A2	EP3538674 A1	EP3965753 A1
EP3363436 A1	EP3872084 A1	EP3963074 A1
EP3733194 A1	WO2022261079 A2	EP3877396 A1
EP4032545 A1	EP3875151 A1	EP3560489 A1
EP4009980 A1	EP3507295 A1	EP3553078 A1
EP3814359 A1	EP3305289 A1	EP3758513 A1
DE102016112024 A1	WO2022221519 A1	EP3678706 A1
EP3827816 A1	WO2022136370 A1	EP3618861 A1
EP3990489 A1	WO202278589 A1	WO2018141661 A1
WO2019219529 A1	WO202274014 A1	US20210128561 A1
EP3768307 A1	WO202223483 A1	
EP3746075 A1	WO2021173592 A1	
EP3746071 A1	EP3822346 A1	
EP3672951 A1	EP3750878 A1	
EP3672952 A1	EP3750527 A1	

II. FUNDING SUMMARY

Determining the exact funding channels and amounts for German research in the context of this NTDs expertise proved to be difficult. Initially, an NTDs-specific search was conducted via the G-FINDER data portal as a tracker of annual investments in research, diagnostic products and technologies. This is in contrast to the expertise from 2018, where mainly GEPRIS and therefore mainly DFG projects and individual funding information from the contribution authors and institutions were gathered. However, many German research institutions do not report data to G-FINDER, and some NTDs, such as dracunculiasis, echinococcosis, food-borne trematodiasis or rabies, are not included in the G-FINDER report; yaws will be included in the 2022 analysis for the first time. In addition, operational research, capacity building or access- and health systems research do not fall within the scope of G-FINDER.

Therefore, the top ten German NTDs research institutions and organisations were asked to provide information on their externally funded projects from 2018-2022. In addition, a request was sent to the most important donor organisations in Germany, such as the BMBF and the BMZ. A summarised list from this information, which includes projects from 2018-2022 and the G-FINDER results for 2018-2022, was used for this analysis. For reasons of confidentiality the exact volumes of funding disaggregated by project and donor will not be publicly displayed. In addition, various projects that serve to strengthen health systems, such as those financed by the BMZ, were not listed as they are not explicitly NTDs research projects. Nonetheless, these projects clearly play a role in capacity building, support research and promote country ownership in the fight against NTDs. These projects are not included in this summary of funding, as well as institutional funding where the correct allocation towards NTDs research cannot be made as several diseases are targeted by these institutions. Figure 2 displays the focus areas by the top ten funders as well as the specific thematic focus areas, represented by the icons.

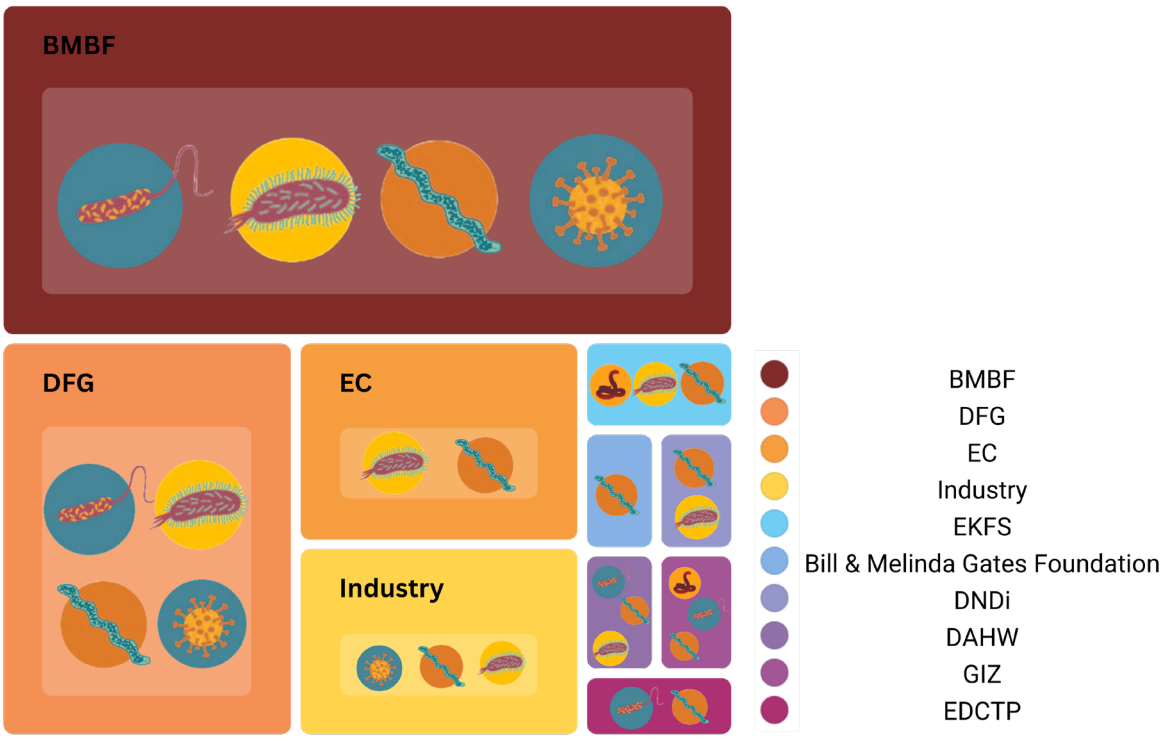


Figure 2: Focus areas found disaggregated by funder coded by colour. Top ten funders of German NTDs research projects displayed. Size is related to the number of fundings found and not in relation to the amount of funding given. More funders can be found but are not displayed in this graph

III. JOURNALS COMPARISON PREVIOUS TIMEFRAME AND OPEN ACCESS

The journal metrics analysis was based on a subset of analysable articles. All searches performed were narrowed down to the period from 1 January 2018 to 31 December 2022 and conducted in the MEDLINE database using a peer-reviewed search algorithm; the PubMed identifiers were then transferred to the Altmetric (Digital Science) Dimensions environment for data analysis. For comparability, the same search was conducted for the timeframe 2013-2017 and is displayed in this annex in figure 3. Additionally, the Dimensions environment provided an analysis of the open access availability of NTDs related journal publications in Germany as displayed in figure 4 AB.

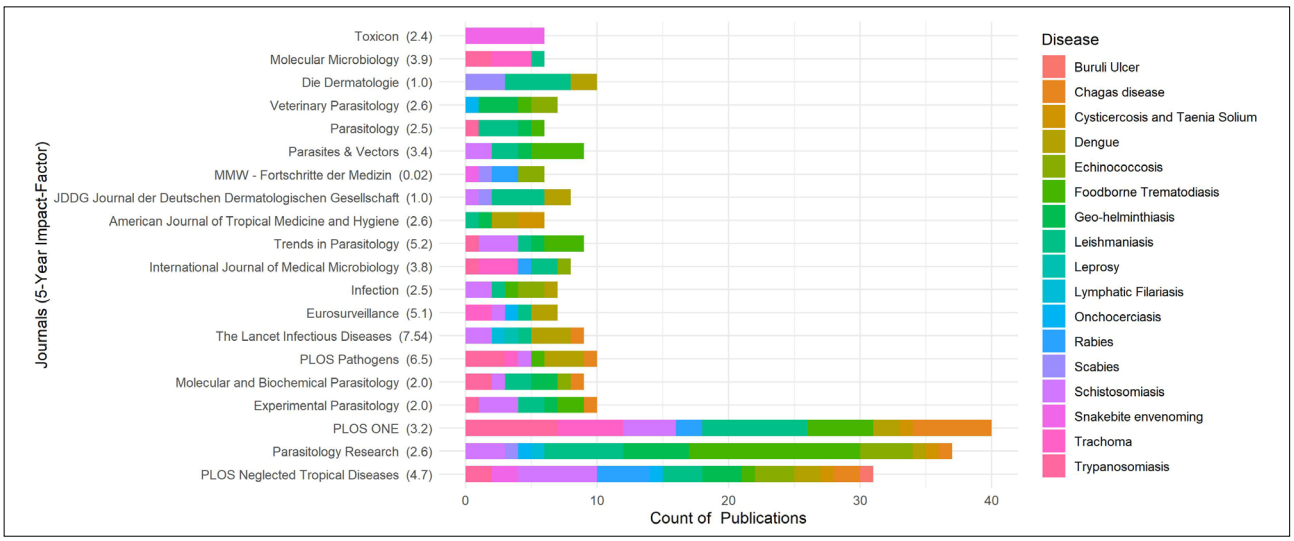


Figure 3: Publication counts and journals with 5-year impact factor (IF from 2018) of NTDs research in Germany for the previous time-frame 2013-2017 for the comparison to the publication metrics for the timeframe 2018-2022

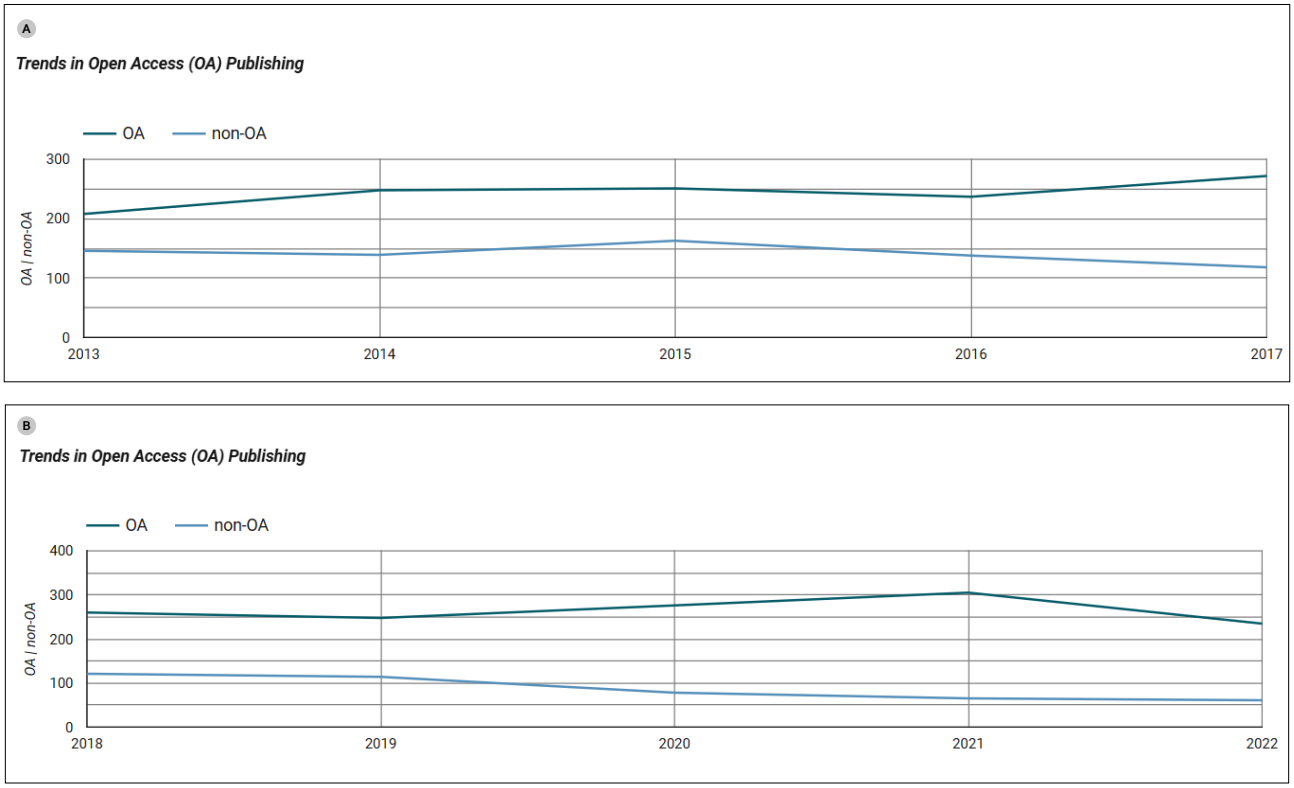


Figure 4: Comparison of open access and non-open access publications in Germany in the timeframes (A) 2013-2017 and (B) 2018-2022

Clinical trials summary

Following, the included clinical trials with a German study sponsor are listed. It is possible that further German involvement in clinical studies was not detected due to the limited descriptions of the trials and the involved actors in the databases.

Database	Disease	Trial lead	Registration/ Start date	Phase
U.S. National Library of Medicine	Buruli Ulcer	University Hospital Heidelberg	07. Mai 19	
ISRCTN	Buruli Ulcer / Lymphatic Filariasis	DAHW German Leprosy and TB Relief Association (GLRA) Nigeria	27. Aug 21	
ISRCTN	Buruli Ulcer	Deutsche Lepra- und Tuberkulosehilfe	18. Mrz 21	
Clinical trial register EU	Chagas	Bayer AG	08. Apr 22	2
U.S. National Library of Medicine	Chagas	Bayer AG	19. Mai 22	
U.S. National Library of Medicine	Chagas	Bayer	14. Dez 18	
U.S. National Library of Medicine	Chagas	Bayer	10. Jun 19	1
U.S. National Library of Medicine	Chagas	Bayer	14. Jun 18	1
U.S. National Library of Medicine	Chagas	Bayer	17. Aug 22	
U.S. National Library of Medicine	Chagas	Bayer	05. Dez 18	1
U.S. National Library of Medicine	Leishmaniasis	K. W. Stahl	01. Sep 21	
ISRCTN	Leprosy	German Leprosy and TB Relief Association	18. Aug 22	
PACTR	Lymphatic Filariasis	Ayola Akim Adegnika		
ISRCTN	Onchocerciasis	DZIF	04. Jun 21	2
U.S. National Library of Medicine	Onchocerciasis	AbbVie	29. Mai 21	2
PACTR	Schistosomiasis	Bernhard Nocht Institute of Tropical Medicine		
PACTR	Schistosomiasis	Merck KGaA	11. Dez 19	4
PACTR	Schistosomiasis	Merck KGaA	26. Sep 18	3
U.S. National Library of Medicine	Schistosomiasis	Technical University of Munich	13. Dez 21	
U.S. National Library of Medicine	Schistosomiasis	Merck KGaA, Darmstadt, Germany	02. Sep 19	3
Clinical trial register EU	Scabies	InfectoPharm Arzneimittel und Consilium GmbH	26. Jan 21	
U.S. National Library of Medicine	Scabies	Infectopharm Arzneimittel GmbH	22. Mrz 21	3
U.S. National Library of Medicine	Cysticercosis and Taenia Solium	Technical University of Munich	23. Okt 18	
U.S. National Library of Medicine	Rabies	CureVac	12. Okt 18	1
U.S. National Library of Medicine	Dengue	University of Heidelberg Medical Center	01. Apr 18	

IV. INDIVIDUAL ASSESSMENT OF THE NEGLECTED TROPICAL DISEASES

1 **Human African Trypanosomiasis** (Sleeping-Sickness)

2 **Buruli Ulcer**

3 **Chagas Disease** (Trypanosoma Cruzi Infection)

4 **Dengue**

5 **Dracunculiasis** (Medina worm, guinea worm)

6 **Echinococcosis**

7 **Endemic Treponematoses** (Yaws, Bejel, Pinto)

8 **Soil transmitted-Helminths** (STH)

9 **Leishmaniasis**

10 **Leprosy**

11 **Lymphatic Filariasis**

12 **Mycetoma**

13 **Onchocerciasis**

14 **Schistosomiasis**

15 **Snakebite Envenoming**

16 **Scabies** (Sarcoptes-Scabiei-Infection)

17 **Taeniasis / cysticercosis** (Pork Tapeworm)

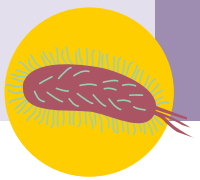
18 **Rabies**

19 **Trachoma**

20 **Foodborne Trematodiasis**

1 HUMAN AFRICAN TRYPANOSOMIASIS (HAT/SLEEPING-SICKNESS)

Markus Engstler, August Stich



SUPPLEMENTARY INFORMATION

Vaccination	No vaccines currently being studied.
Drugs	Fexinidazole as oral therapy, daily single dose given with food: 1.800 mg (3 tbl.) on day 1-4, followed by 1.200 mg on day 5-10; treats both stages of *T.b. gambiense* infection, recommended to replace the highly toxic alternative medications. Use in *T.b. rhodesiense* infection is currently evaluated in order to replace the currently used suramin. Alternatives: Pentamidine for stage I *T.b. gambiense* infection, Nifurtimox-eflornithine combination therapy (NECT) as safe and effective treatment for stage II, the highly toxic drug melarsoprol.
Therapy	Therapies are complex and require high level of expertise.
Diagnostics	A combination of rapid antibody screening and microscopic based diagnosis is used. Rapid diagnostic tests (RDTs) are currently under evaluation showing promising results. The current gold standard for the confirmation of the disease is the microscopic identification of the parasite in blood, lymph juice of CSF. Newly published techniques: loop mediated isothermal amplification (LAMP) and recombinant polymerase amplification (RPA)-base tests.
Operational	Necessity to apply all tools of diagnosis and treatment even in remote and war ridden areas of Africa. Integration of HAT control measures in the general package of basic health care. WHO has a target of disease transmission elimination in all affected countries by 2030.

SEARCH SYNTAX „HUMAN AFRICAN TRYPANOSOMIASIS“

PubMed search: Trypanosomiasis, human African -
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Trypanosomiasis, African[Mesh] OR „African trypanosomiasis“[Title] OR (Africa[Title/Abstract] AND Trypanosomiasis[Title/Abstract]) OR „Sleeping sickness“[Title] Filters: Publication date from 2013/01/01 to 2017/12/31
#2	Trypanosoma brucei rhodesiense[MeSH Terms] OR Trypanosoma brucei gambiense[MeSH Terms] OR „Trypanosoma brucei“[Title] OR „T. brucei“[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4 (#1 OR #2)

Germany:

#5 (#1 OR #2) AND #3

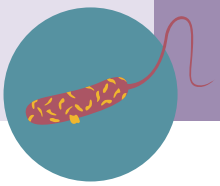
Limits: NO

Map:

https://apps.who.int/neglected_diseases/ntddata/hat/hat.html

2 BURULI ULCER

Thorsten Thye



SUPPLEMENTARY INFORMATION

Vaccination	At present there is no vaccine licensed to prevent the disease. Several vaccine types have been developed up to date, but none has entered any clinical trial was released for public use.
Drugs	Rifampicin and clarithromycin, moxifloxacin.
Therapy	Oral systemic antibiotic therapy with rifampicin plus clarithromycin or moxifloxacin for 8 weeks and depending on the stage, wound care and surgery (mainly debridement and skin grafting). The healing time and success depend on the size of wounds and can take as long as 72 weeks for grade II lesions.
Diagnostics	Based on the WHO clinical case definition. However, at present, confirmatory diagnostic tests either lack sufficient sensitivity/specificity or are only available at specialized laboratories. In addition, skin conditions mimicking Buruli disease, particularly in tropical areas, complicate diagnostics of the disease.
Operational	Early identification of the cases is essential with additional awareness and funding needed for research in this field and the development of more treatments, diagnostic tools, and vaccines. Underreporting is considered likely due to the lack of access to formal health sectors from remote areas. BU programs are required to strengthen case detection and begin a transition towards integration with other skin-NTDs.

PubMed search: Buruli Ulcer –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Buruli ulcer[MeSH Terms] OR „Buruli ulcer"[Title] OR "Buruli ulkus" [Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Mycobacterium ulcerans"[Title] OR „M. ulcerans"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4	(#1 OR #2)

Germany:

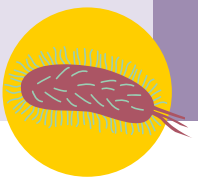
#5	(#1 OR #2) AND #3

Limits: NO

Map:
https://www.who.int/data/gho/data/themes/topics/buruli-ulcer

CHAGAS DISEASE (TRYPANOSOMA CRUZI INFECTION)

Günter Fröschl, Michael Pritsch



SUPPLEMENTARY INFORMATION

Vaccination	There is currently no vaccine for the disease.
Drugs	There are only two drugs available (benznidazole and nifurtimox).
Therapy	The current treatment is effective for some disease stages but currently takes eight weeks and sometimes has serious side effects.
Diagnostics	Several tests must be used to accurately diagnose it and adequate testing methods for treatment success are lacking.
Operational	Likely fewer than 10% of people living with Chagas disease receive adequate diagnosis and treatment. Better drugs and treatment options are needed. Also, access to diagnosis and treatment for people living at risk for or living with Chagas disease needs to be expanded.

PubMed search: Chagas disease –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 Chagas disease[Mesh] OR

Chagas cardiomyopathy[Mesh] OR
„Chagas disease"[Title] OR
„Chagas cardiomyopathy"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 Trypanosoma cruzi[Mesh] OR
„Trypanosoma cruzi"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

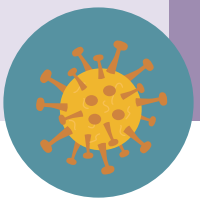
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
Map of Latin America from the current AWMF recommendation on CD
https://register.awmf.org/assets/guidelines/042-009l_S1_Screening-Diagnose-Behandlung-klinisches-Management-Chagas-Krankheit_2022-11.pdf

4 DENGUE

Pietro Scaturro, Jonas Schmidt-Chanasit



SUPPLEMENTARY INFORMATION

Vaccination	Dengvaxia and Qdenga are currently the only approved vaccines in the EU. and Dengvaxia is limited to people in endemic areas of the EU aged between 9 -45 years old and with at least one confirmed dengue virus infection. Qdenga is approved by EMA for people over 4 years of age and without prior dengue virus infection.
Drugs	There are no specific drugs available or approved by the FDA for use against dengue.
Therapy	There are currently no specific treatments or cures for dengue. Current treatment options are supportive and aim to limit the complications and severity of symptoms.
Diagnostics	Commercial DENV Real-Time RT-PCRs are available, and they provide an improved and more useful reference as it is accurate at discriminating DENV from other flaviviruses.
Operational	Reliable POC test are available, making the monitoring of dengue epidemiology easier and thus, affecting physicians' therapeutic decisions regarding dengue patients, especially in developing countries. However, most dengue cases are underreported with many cases asymptomatic, mild and self-managed, or misdiagnosed.

PubMed search: Dengue –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Dengue[Mesh] OR Dengue vaccines[Mesh] OR Severe dengue[Mesh] OR Dengue virus[Mesh] OR Dengue[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Dengue[Title] AND (aegypti [Title] OR albopictus [Title]) Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4	(#1 OR #2)

Germany:

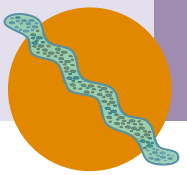
#5	(#1 OR #2) AND #3

Limits: NO

Map:
https://www.ecdc.europa.eu/en/publications-data/dengue-virus-disease-cases-reported-january-december-2022

5 DRACUNCULIASIS (MEDINA WORM, GUINEA WORM)

Inge Kroidl, Jürgen May



SUPPLEMENTARY INFORMATION

Vaccination	There is no vaccine to prevent it.
Drugs	No drugs to prevent and/or to treat dracunculiasis.
Therapy	No therapies to prevent it.
Diagnostics	Relies on clinical presentation to diagnose it.
Operational	The eradication relies on case containment: to prevent water contamination and other public health interventions to prevent infection. Some of the control measures include education, filtration and boiling of drinking water.

PubMed search: Dracunculiasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 (dracunculiasis[Mesh] OR
dracunculiasis[Title] OR
Guinea-worm[Title] OR
"Medina worm"[Title] OR
Dracontiasis[Title] OR
„fiery serpent"[Title] OR
Medinawurm[Title] OR
Guineawurm[Title])
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 (Dracunculus nematode[Mesh] OR
"Dracunculus nematode"[Title] OR
"Dracunculus medinensis"[Title])
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

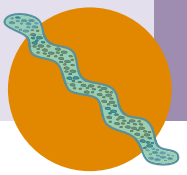
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
Pellegrino C, Patti G, Camporeale M, Belati A, Novara R, Papagni R, Frallonardo L, Diella L, Guido G, De Vita E, Totaro V, Segala FV, Veronese N, Cotugno S, Bavaro DF, Putoto G, Bevilacqua N, Castellani C, Nicastri E, Sara-cino A, Di Gennaro F. Guinea Worm Disease: A Neglected Diseases on the Verge of Eradication. Tropical Medicine and Infectious Disease. 2022; 7(11):366. https://doi.org/10.3390/tropicalmed7110366

6 ECHINOCOCCOSIS (DOG AND FOX TAPEWORM)

Joachim Richter, Valentina Marchese



SUPPLEMENTARY INFORMATION

Alveolar Echinococcosis

Vaccination	No vaccine up to now.
Drugs	Chemotherapy drugs with or without surgery.
Therapy	Radical surgery is the preferred approach in suitable cases.
Diagnostics	Generally asymptomatic, so the disease is rarely diagnosed. It is usually in advanced stages when diagnosed using primarily imagining or serological testing.
Operational	Continuous education is needed; control measures in wild animals and periodical anthelmintic treatment for dogs are required.

Cystic Echinococcosis

Vaccination	The Eg95 vaccine to protect sheep and goat.
Drugs	Chemotherapy with benzimidazoles is the preferred treatment. Praziquantel as protoscolicidal agent is encouraging.
Therapy	Surgical intervention in conjunction with chemotherapy. PAIR (percutaneous aspiration, injection of chemicals and re-aspiration) can also be carried out.
Diagnostics	Noninvasive imaging techniques are used to detect the cyst on the organs. Also, serologic tests are sensitive methods in detecting the infection.
Operational	Continuous education is needed, prevention and control measures among animals are required.

PubMed search: Echinococcosis –
Published Research International and from Authors affiliated to an Institution in Germany

---

No	Search-Term
#1	Echinococcosis, hepatic[MeSH] OR Echinococcosis, pulmonary[MeSH] OR Echinococcosis[MeSH] OR Echinococcosis[Title] OR "Hydatic disease"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Echinococcus granulosus[MeSH] OR Echinococcus multilocularis[MeSH] OR Echinococcus[MeSH] OR Echinococcus[Title] OR "Echinicoccus vogeli"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4	(#1 OR #2)

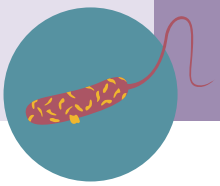
Germany:

#5	(#1 OR #2) AND #3

Limits: NO

7 ENDEMIC TREPONEMATOSES (YAWS, BEJEL, PINTO)

Sascha Knauf



SUPPLEMENTARY INFORMATION

Vaccination	No vaccines exist. A lack of understanding of the biology and proteome of the yaws bacterium challenges vaccine development.
Drugs	Azithromycin treatment is still effective. However, antibiotic resistance is of major concern. Therefore, treatment control is essential, and any individual with treatment failure needs macrolide-resistance testing and treatment with benzathine penicillin.
Therapy	For yaws, WHO recommends azithromycin (single oral dose) at 30 mg/kg (max. 2 g). Benzathine penicillin (single dose intramuscular) at 0.6 million units for patients younger than ten and 1.2 million units for patients older than ten.
Diagnostics	The serological detection of antibodies cannot differentiate between the different treponematoses. *Haemophilus ducreyi* infection can mimic yaws. Molecular detection in combination with serology is, therefore, the standard diagnostic procedure. However, it is challenging to detect the latent stage of the disease.
Operational	There is a lack of objective data on yaws in many of the 103 historically yaws-reporting countries. Moreover, the infrastructure and resources in the global South are often insufficient to diagnose and control endemic treponematoses, which are generally present at low population-level prevalence. In yaws, emerging macrolide-resistant strains challenge mass drug administration with azithromycin. Although human yaws elimination is achievable, eradication is hindered by the natural occurrence of the bacterium in nonhuman primates in sub-Saharan Africa. The current epidemiology of pinta is unknown, and bejel strains are reported to cause syphilis-like lesions in humans. Capacity building and research are critical to the success of eliminating endemic treponematoses.

PubMed search: Endemic treponematoses –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 reponemal Infections[MeSH] OR
„Endemic treponematoses"[Title] OR
(Treponema*[Title] AND Carateum[Title]) OR
(Treponema*[Title]) AND Endemicum[Title]) OR
(Treponema*[Title] AND Pertenue[Title]) OR
„Treponema pertenue"[Title] OR
„Treponemal infection*"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 (Yaws[MeSH] OR
Pinta[MeSH] OR
Bejel[MeSH]) OR
(Yaws[Title] OR
Pinta[Title] OR
Bejel[Title])
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

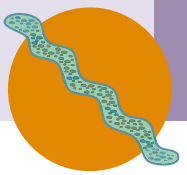
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
https://www.who.int/southeastasia/news/detail/14-07-2016-who-felicitates-india-for-yaws-maternal-and-neonatal-tetanus-elimination

SOIL TRANSMITTED-HELMINTHS (STH)

Valentina Marchese, Georg von Samson-Himmelstjerna



SUPPLEMENTARY INFORMATION

Vaccination	The most successful helminth recombinant vaccines are two against hookworm disease, consisting of aspartic protease-1 (Na-APR-1) and glutathione-S-transferase-1 (Na-GST-1). But these vaccines are currently in phase 1 of clinical trials.
Drugs	Preventive chemotherapy (PC) with either albendazole or mebendazole; ivermectine for strongyloidiasis and in combination with albendazole/mebendazole for Trichuris.
Therapy	(For confirmed cases) hookworm: albendazole 400 mg daily x 3 days or mebendazole 100 mg x3 days; ivermectin 200 mg/kg/day for *S. stercolaris* (for several days based on microbiological clearance in case of hyper infection/disseminated infection); ascaris: albendazole 400 mg single dose or mebendazole 500 mg single dose or 100 mg bid x3 days; Trichuris: mebendazole 100 mg bid x 3 days or albendazole 400 mg x 3 days or ivermectin 200 mg/kg/qd x 3 days; drug combination also proposed. Surgery may be required in case of severe complication due to ascariasis (small intestinal obstruction, volvulus, intussusception and perforation); iron supplement for anaemia related to hookworm infections or antibiotics in case of Gram-negative infection related to disseminated strongyloidiasis or hyper infection.
Diagnostics	Microscopic evaluation of fecal specimens, serology and nematode culture for strongyloidiasis.
Operational	Access to appropriate sanitation, hygiene education, and preventive chemotherapy; integrated one-health approach; increase MDA coverage and perfom epidemiological survey for *S. stercoralis.*

PubMed search: Geo-helminthiasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 Geo-helminth*[Title] OR
Geohelminth*[Title] OR
„Soil-transmitted helminth*"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

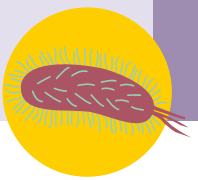
#2 Ascaris lumbricoides[MeSH] OR
Trichuris[MeSH] OR
Trichuriasis[MeSH] OR
Ancylostoma[MeSH] OR
Necator americanus[MeSH] OR
Hookworm Infections[MeSH] OR
Ancylostomatoidea[MeSH] OR
Trichuris[MeSH] OR
Hookworm[Title][Title] OR
Ascaris lumbricoides[Title] OR
Trichuris[Title] OR
Trichuriasis[Title] OR
Ancylostoma[Title] OR
„Necator americanus"[Title] OR
Whipworm[Title] OR
Ancylostomatoidea[Title] OR
Ancylosto ma duodenalis[Title] OR
Strongyloides[Title] OR
„Enterobius vermicularis"[Title] OR
„Ascaris suum"[Title] OR
„Toxocara canis"[Title] OR
„Toxocara mystax"[Title] OR
„Toxocara cati"[Title] OR
„Toxocariasis"[Title] OR
„Ancylostoma caninum"[Title] OR
„Strongyloides stercoralis"[Title] OR
„Strongyloidosis"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO



SUPPLEMENTARY INFORMATION

Vaccination	No adequate vaccine is available to create a long-term protection effect.
Drugs	Antiparasitic drugs are treatment of choice (such as liposomal amphotericin B). However, drug therapy has been limited because of adverse side effects, high costs and unsuccessful vaccine research.
Therapy	Systematic evaluation of combination therapies, in particular for CL.
Diagnostics	Most used methods are qPCR-based, which have proven to be very effective in the diagnosis of leishmaniasis, but a standardized method does not exist. Also, targets other than high copy number genes must be evaluated.
Operational	The available few drugs are effective but toxic, expensive and barely available in endemic countries. More knowledge of vectors and reservoirs and their control is urgently needed.

PubMed search: Leishmaniasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Leishmaniasis[Mesh] OR Leishmaniasis, cutaneous [Mesh] OR Leishmaniasis, mucocutaneous[Mesh] OR Leishmaniasis, visceral[Mesh] OR Leishmaniasis[Title] OR "Kala azar"[Title] OR Leishmaniosis[Title] OR Leishmaniose[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Leishmania[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4	(#1 OR #2)

Germany:

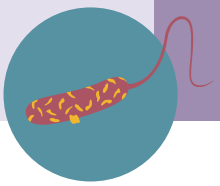
#5	(#1 OR #2) AND #3

Limits: NO

Map:
Pigott DM, Bhatt S, Golding N, Duda KA, Battle KE, Brady OJ, et al.
Global distribution maps of the leishmaniases. eLife. 2014 Jun
27;3:e02851.
https://elifesciences.org/articles/02851.pdf

10 LEPROSY

Christa Kasang



SUPPLEMENTARY INFORMATION

Vaccination	BCG is the only vaccine available for the disease. TB patients and unexposed controls may show cross-reactivity.
Drugs	MDT (Multi Drug Therapy) combination of three antibiotics: Rifampicin monthly, Clofazimine and Dapsone; Immunological reactions treated with Prednisolone and/or Thalidomid.
Therapy	MDT, a combination of two or three antibiotics are used at the same time. Treatment usually lasts between six month and one year. Immunological reactions during treatment need to be monitored and treated.
Diagnostics	Can be diagnosed by the clinical appearance of the patches.
Operational	Early detection of active cases is necessary, the disease has low incidence rate, patient education, and annual evaluation of household contacts are key to leprosy prevention.

PubMed search: Leprosy –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Leprosy[Mesh] OR Leprosy, paucibacillary[Mesh] OR Leprosy, tuberculoid[Mesh] OR Leprosy, lepromatous[Mesh] OR Leprosy, borderline[Mesh] Leprosy, multibacillary[Mesh] OR „Hansen's disease"[Title] OR Morbus Hansen[Title] OR Leprosy[Title] OR Leprae[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Mycobacterium leprae[Mesh] OR „Mycobacterium leprae"[Title] OR „M. leprae"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

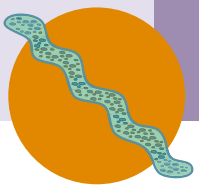
International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO

11 LYMPHATIC FILARIASIS

Achim Hörauf, Inge Kroidl



SUPPLEMENTARY INFORMATION

Vaccination	No vaccine in clinical development.
Drugs	Drug-based interventions are focusing on the reduction of transmission. Drugs of choice for the mass drug administration (MDA) in endemic areas are Albendazole plus either Ivermectin (in countries with Onchocerciasis co-infection), or plus Diethylcarbamazine citrate (DEC; in countries without oncho). Since 2017, the triple drug therapy of all three components has proven more effective and safer, and is recommended for all areas where neither onchocerciasis nor loiasis is co-endemic. DEC can cause serious adverse reactions in people with ocular *O. volvulus* MF load, or with high Loa loa microfilaremia (>8.000 MF/ml).
Therapy	Doxycycline has proven effective against the adult worm of *W. bancrofti* and *B. malayi*. Other potent adulticidal drugs are already in clinical development. In addition, morbidity management to delay and reduce the swelling and prevent possible infection is required. Studies have shown that this can be achieved with doxycycline, or with a very stringent adherence to daily hygiene.
Diagnostics	Traditional parasitological testing for MF in peripheral blood may lack sensitivity if there are low (<10 MF/ml) microfilarial numbers in the blood and require consideration of the diurnal cycle. The rapid test for circulating antigen is independent of the diurnal rhythm and detects filarial infection from a blood sample (fingerprick, other) even in patients that present without microfilaremia. Both tests are used to decide when to stop mass drug interventions, however the current thresholds (<1% microfilaremia, <2% antigen positivity) need more confirmatory data if they are sufficient for successful TAS (transmission assessment surveys).
Operational	The WHO aims to eliminate the disease by 2030 and that's mainly by interrupting the transmission using mass drug administration (MDA). Elimination is hereby defined as i) 0/72 countries requiring further MDA; ii) 58/72 countries have been validated for elimination as a public health problem (defined as infection sustained below TAS thresholds for at least 4 years after stopping MDA).

PubMed search: Lymphatic Filariasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Elephantiasis, filarial[MeSH Terms] OR „Lymphatic filariasis"[Title] OR Elephantiasis[Title] OR "Filarial Hydrocele" [Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	„Wuchereria bancrofti"[Title] OR „Brugia malayi"[Title] OR „Brugia timori"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:
#4 (#1 OR #2)

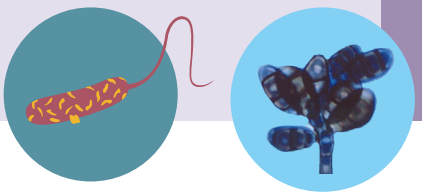
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
https://commons.wikimedia.org/wiki/File:Lymphatic_filariasis_world_map-DALYs_per_million_persons-WHO2012.svg

12 MYCETOMA

Andrea Vanegas Ramirez, Marcellus Fischer



SUPPLEMENTARY INFORMATION

Vaccination	No vaccine up to date.
Drugs	
Therapy	Treatment of eumycetoma is with antifungal agents in combination with surgical excision and the treatment of actinomycetoma is with antibacterial agents.
Diagnostics	It doesn't have typical clinical presentation. To diagnose it, clinicians rely on clinical trial of symptoms in endemic regions. And it is challenging to be diagnosed in non-endemic areas.
Operational	The accurate diagnosis of the disease requires a detailed clinical history, including immigration status and travel history to endemic regions, a thorough physical examination and imaging studies. It can be prevented by simply wearing adequate shoes especially in rural areas.

PubMed search: Mycetoma –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Mycetoma[Mesh] OR Mycetoma[Title] OR „Madura foot"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Actinomycetoma[Title] OR Eumycetoma[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:
#4 (#1 OR #2)

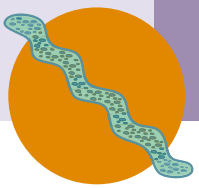
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
Prevalence of mycetoma per 100 000 population, latest year available (who.int)
https://cdn.who.int/media/docs/default-source/ntds/mycetoma-chromoblastomycosis-and-other-deep-mycoses/prevalence-of-mycetoma--per-100000-population-latest-year-available_8ef8140d-5408-42a0-949c-7bebd42dcc0c.pdf?sfvrsn=2ac19f5d_4

13 ONCHOCERCIASIS

Achim Hoerauf, Marc P. Hübner



SUPPLEMENTARY INFORMATION

Vaccination	No vaccine until now. A vaccine candidate consisting of Ov-103 and Ov-RAL2 fusion proteins is currently in late preclinical development.
Drugs	There are multiple drug options which can be used for treating the disease. The drugs most widely used only kill the larval stages, i.e. the microfilariae. The medical need is still drugs that kill the long-lived (10-15 years) adult worms and can be administered in shorter time as the prototype doxycycline. New adult worm-killing drugs are currently tested in phase 2 studies.
Therapy	Ivermectin is usually the treatment of choice for mass drug administration because it has few side effects, however, it is contraindicated in persons with loiasis and does not kill the adult worms. Doxycycline kills the adult worms, but has to be given for 4-6 weeks.
Diagnostics	More sensitive diagnostic methods are required for the decision when to stop mass drug interventions.
Operational	Multiple disease control programs were initiated and significantly reduced the transmission of the disease. However, the current interventions will not be sufficient to achieve the goals of the WHO NTD Roadmap 2021-2030.

PubMed search: Onchocerciasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Onchocerciasis[Mesh] OR Onchocerciasis, ocular[Mesh] OR Onchocerciasis[Title] OR „River blindness"[Title] OR onchocercosis [Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Simuliidae[Mesh] OR Onchocerca volvulus[Mesh] Simuliidae[Title] OR „Onchocerca volvulus"[Title] OR Simulium[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

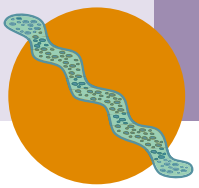
International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO

14 SCHISTOSOMIASIS

Daniela Fusco, Andrea Kreidenweiss



SUPPLEMENTARY INFORMATION

Vaccination	None.
Drugs	Praziquantel (PZQ) is the only available medicament. It is used for treatment and also in control programs in endemic countries by mass drug administration. PZQ only kills adult worms, but not young worms.
Therapy	New drugs are urgently needed because resistance to PZQ is emerging. Effective new drugs need to be developed that work against adult and juvenile worms. The drug development pipeline is short of advanced drug candidates.
Diagnostics	Gold standard is the detection of *Schistosoma* eggs by microscopy in stool or urine. This method is specific but not sensitive and low-intensity infections (e.g. in travelers) are detected. Within six to eight weeks after infection, the diagnosis is false negative. Serological tests are available but are not standardized and not useful in endemic countries. The detection of *Schistosoma* antigens (CAA, CCA) tests are currently developed as improved rapid diagnostic tests. Sensitive methods for identifying young and adult schistosomes need to be developed. Molecular tests are available but only amenable in research or control activities.
Operational	Implementation of water supplies, sanitation and hygiene (WASH) procedures must be optimized in endemic countries.

PubMed search: Schistosomiasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 Schistosomiasis[Mesh] OR
Bilharziasis[Mesh] OR
Neuroschistosomiasis[Mesh] OR
intestinal Schistosomiasis[MeSH] OR
Schistosomiasis[Title] OR
Neuroschistosomiasis[Title] OR
Bilharzios*[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 Schistosoma haematobium[Mesh] OR
Schistosoma mansoni[Mesh] OR
Schistosoma japonicum[Mesh] OR
Schistosoma[Mesh] OR
"Schistosoma intercalatum"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/schistosomiasis

15 SNAKEBITE ENVENOMING

Jöerg Blessmann, Benno Kreuels

SUPPLEMENTARY INFORMATION

Vaccination	No vaccine.
Drugs	Antivenoms remain the only specific treatment that can potentially prevent or reverse most.
Therapy	Several antivenoms are available but their evaluation has not been properly carried out and they remain expensive. The deficiency of epidemiological data makes the implementation of appropriate and efficient care difficult.
Diagnostics	Mainly a combination of patient history and a syndromic approach. The availability of auxiliary diagnostic tests varies from country to country. New diagnostic approaches to identify snake species from the bite are not available.
Operational	Distribution of adequate antivenom based on epidemiological data, improving access to care and capacity building of healthcare workers is urgently needed.

PubMed search: Snakebite envenoming –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Snake bites[Mesh] OR Snake Venoms [Mesh] OR "Snake bite*"[Title] OR Snakebite*[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	(Antivenom[Title] AND Snake*[Title]) Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
GBD 2019 Snakebite Envenomation Collaborators, Roberts NLS, Johnson EK, Zeng SM, Hamilton EB, Abdoli A, et al. Global mortality of snakebite envenoming between 1990 and 2019. Nat Commun. 2022 Oct 25;13(1):6160.

16 SCABIES (SARCOPTES-SCABIEI-INFECTION)

Ghyslain Mombo-Ngoma

SUPPLEMENTARY INFORMATION

Vaccination	No vaccine up to date.
Drugs	
Therapy	The first treatment of choice is topical application of permethrin. Other treatment options include systemic ivermectin and topical crotamiton or benzyl benzoate. Moxidectin is a new substance now undergoing clinical testing.
Diagnostics	Using clinical presentation of the condition. However, recently, dermatoscopy is used, non-invasive method, it was reported to have sensitivity and specificity of 98.3% and 88.5%, respectively.
Operational	

PubMed search: Scabies –
Published Research International and from Authors affiliated to an Institution in German

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No Search-Term

#1 Scabies[MeSH Terms] OR
Scabies[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 „Sarcoptes scabiei"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

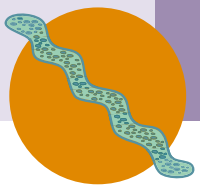
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
Zhang W, Zhang Y, Luo L, Huang W, Shen X, Dong X, et al. Trends in prevalence and incidence of scabies from 1990 to 2017: findings from the global Burden of disease study 2017.
Emerging Microbes & Infections. 2020 Jan;9(1):813–6.

17 TAENIASIS / CYSTICERCOSIS (PORK TAPEWORM)

Andrea Sylvia Winkler, Clarissa Prazeres da Costa



SUPPLEMENTARY INFORMATION

Vaccination	Highly effective vaccine for pigs which prevents pig infection and blocks transmission between pigs and human.
Drugs	Antihelminthic drugs are effective (Albendazole, Praziquantel) for treatment of active NCC and for mass drug administration against *T. solium* taeniasis (Praziquantel, Niclosamide). No resistance so far.
Therapy	Inpatient treatment; Albendazole and/or Praziquantel plus Corticosteroids over ten days or for longer according to clinical signs/symptoms.
Diagnostics	Available serological testing of varying sensitivity/specificity and neuroimaging options, which are expensive and/or unaffordable.
Operational	A combination therapy targeting the parasite in both the human and pig host administered with health education provide the most effective approaches for achieving control and ultimately elimination.

PubMed search: Cysticercosis and Taenia Solium –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Cysticercosis[MeSH Terms] OR Neurocysticercosis[MeSH Terms] OR Cysticerc*[Title] OR OR Neurocysticerc*[Title] OR Ocular cysticercosis[MeSH Terms] OR Subcutaneous cysticercosis[MeSH Terms] OR Muscular cysticercosis[MeSH Terms] OR Taeniasis[MeSH Terms] OR Taenias*[Title] OR Taenios*[Title] OR „Pork tapeworm"[Title] OR „Pig tapeworm"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#2	„Taenia solium"[Title] OR „T. solium"[Title] Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:
#4 (#1 OR #2)

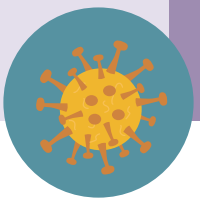
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
World Health Organization. Ending the neglect to attain the sustainable development goals: a road map for neglected tropical diseases 2021–2030 [Internet].
Geneva: World Health Organization; 2020. 177 p.
https://apps.who.int/iris/handle/10665/338565

18 RABIES

Thomas Müeller, Conrad Freuling



SUPPLEMENTARY INFORMATION

Vaccination	The vaccine can prevent 100% of deaths if administered promptly after exposure.
Drugs	
Therapy	There is currently no therapy option at the onset of the disease. The only available therapeutic measures include immediate post-exposure prophylaxis and includes appropriate wound care, administration of rabies immunoglobulin and vaccination to prevent development of clinical disease.
Diagnostics	Appropriate tests are necessary to diagnose rabies in humans; often ante mortem diagnosis in humans requires serial/multiple testing.
Operational	Primary prevention by dog vaccination is available, and it has been effective in lowering the prevalence in many countries in Africa, Asia, Europe and the Americas. Pre-exposure human prophylaxis is available, and it should be offered to all high-risk populations without access to high quality rabies biologicals.

PubMed search: Rabies –
Published Research International and from Authors affiliated to an Institution in Germany

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No	Search-Term
#1	Rabies[Mesh] OR Rabies[Title Filters: Publication date from 2018/01/01 to 2022/12/31
#2	Rabies virus[Mesh] OR Rabies lyssavirus[Title Filters: Publication date from 2018/01/01 to 2022/12/31
#3	AND Germany[ad]

International:

#4	(#1 OR #2)

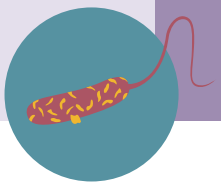
Germany:

#5	(#1 OR #2) AND #3

Limits: NO

19 TRACHOMA

Martin Kollmann



SUPPLEMENTARY INFORMATION

Vaccination	No vaccine is currently available for commercial use. However, there is ongoing research on Chlamydia trachomatis (Ct) vaccines, with a phase I, first-in-human trial conducted between 2016 and 2017 on a potential vaccine against urogenital Ct infection. Effective vaccines could become useful especially in conflict and disaster areas where full SAFE cannot be implemented consistently, and in areas with persistent or recurrent active trachoma.
Drugs	High coverage antibiotic mass drug administration (MDA) using single-dose azithromycin remains the backbone of approaches to clear infection in affected communities. However, the availability of suitable alternative single-dose antibiotics would become important in case of reduced efficacy or serious side effects.
Therapy	The World Health Organization (WHO) recommends the "SAFE" strategy (surgery, antibiotics, facial cleanliness, environmental improvement) to reduce the prevalence of trachoma in affected populations. The S component is offered to all individuals with advanced disease. However, there is need to further improve surgical outcomes especially in low prevalence and low incidence settings around the endgame. The A, F and E components are offered to entire districts in which the prevalence of active trachoma is above a defined threshold. However, there is need for ongoing research how best to integrate trachoma MDA (A component) with other suitable NTD / PH activities. There is also need to enhance our knowledge on the effective implementation, impact and sustainability of the R&D components.
Diagnostics	The presence and severity of the disease is typically diagnosed by specially trained health workers in a standardized clinical examination using a grading system developed by WHO. Laboratory methods (PCR, serology) to confirm current or previous conjunctival *C. trachomatis* infection may be important in certain circumstances, to inform programs and for research.
Operational	SAFE is a well-established public health strategy with proven results. The comprehensive and effective implementation of all components is required for the global elimination of trachoma as a public health problem. Intensified and well-coordinated research, product development and translation into program activities will play an important role in achieving elimination goals.

PubMed search: Trachoma –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 Trachoma[Title] OR
Trachoma[MeSH Terms] OR
(Trichiasis[Title] AND
Trachoma[Title]) AND
(Trachom* [Title/Abstract] AND
(SAFE [Title] OR
"Facial clean*" [Title] OR
"Environmental Improvement[Title]))
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 Chlamydia trachomatis[Mesh] OR
„Chlamydia trachomatis"[Title] OR
„C. trachomatis"[Title]
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

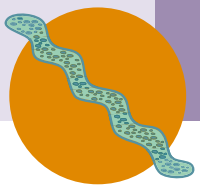
Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map & Data from the two pager derived from WHO:
WEEKLY EPIDEMIOLOGICAL RECORD, NO 28, 14 JULY 2023

20 FOODBORNE TREMATODIASIS

Norbert Mencke, Christian Griebenow



SUPPLEMENTARY INFORMATION

Vaccination	There is no vaccine up to date.
Drugs	Chemotherapy drugs: Praziquantel and triclabendazole.
Therapy	Treatment of patients with diagnosed infection.
Diagnostics	Depends mainly on the clinical picture and the past history of risk factors.
Operational	Targeted mass-drug administration for people, including school children in endemic regions. Improvement of sanitation and education.

PubMed search: Foodborne Trematodiasis –
Published Research International and from Authors affiliated to an Institution in Germany

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No Search-Term

#1 Foodborne trematode"[Title] OR
„Food borne trematode"[Title] OR
„Food borne trematodiases"[Title] OR
„Foodborne trematodiases"[Title] OR
(Trematoda[MeSH Terms] OR
Trematodes[Title] OR
Flukes[Title] OR
Flatworm[Title]) NOT (Schistosoma[Title] OR
Schistsoma[MeSH Terms)
Filters: Publication date from 2018/01/01 to 2022/12/31

#2 Clonorchiasis[MeSH Terms] OR
Fascioliasis[MeSH Terms] OR
Paragonimiasis[MeSH Terms] OR
Opisthorchiasis[MeSH Terms] OR
Clonorchiasis[Title] OR
Fascioliasis[Title] OR
Paragonimiasis[Title] OR
Opisthorchiasis[Title] NOT (Schistosoma[Title] OR
Schistoma[MeSH Terms])
Filters: Publication date from 2018/01/01 to 2022/12/31

#3 AND Germany[ad]

International:
#4 (#1 OR #2)

Germany:
#5 (#1 OR #2) AND #3

Limits: NO

Map:
World Health Organization. Ending the neglect to attain the sustainable development goals: a road map for neglected tropical diseases 2021–2030 [Internet]. Geneva: World Health Organization; 2020. 177 p.
https://apps.who.int/iris/handle/10665/338565
World map on page 107