ISGlobal Barcelona Institute for Global Health

Annual Report ISGlobal 2018

Foreword

Antoni Plasència
General Director

Josep M. Antó
Scientific Director

2018 has been a year marked by substantial progress, completing a big effort to secure the successful merger that took place in June 2016. The positive evaluations of ISGlobal issued by the External Advisory Committee and CERCA ends of 2017 have reassured us in our decisions and have helped us identify relevant opportunities for improvement. We consolidated our scientific organisation and renovated the leadership of our "Malaria" and "Viral and Bacterial Infections" research programmes. We have reinforced the institution's Gender Plan with five of our nine research programmes being led or co-led by women. We completed the first external evaluation of our tenure and tenure track faculty, with very positive results and a first round of promotions to full professors and associate research professors. Importantly, we managed to close a balanced budget, with a new funding scheme now providing some support for the institution's strategic development. We also strengthened our translational leadership in the implementation of the Sustainable Development Goals (SDGs) and the field of Planetary Health, and we have made important new steps in our long-term partnerships in the Global South, with Mozambique, Bolivia and Morocco.

"Our scientific production continued to grow, not only in quantity but also in quality

The positive trend of our activities observed over the past two years has continued in 2018. Our scientific production continued to grow, not only in quantity but also in quality with around 450 research articles and reviews published, of which 63% in first-decile journals. Beyond the numbers, we would like to highlight some specific achievements: *The Lancet* published a study led by Oriol Mitjá, which will be key for guiding strategies aimed at eliminating yaws disease, and three of our researchers (Jordi Sunyer, Martine Vrijheid and Mark Nieuwenhuijsen) were among the top 1% most-cited researchers according to the 2018 Clarivate Analytics List. We also achieved a significant increase in competitive funding and grant submissions. Major projects granted in 2018 include BOHEMIA, a Unitaid-funded project that will test an innovative vector control strategy to reduce malaria transmission; an EDCTP-funded project (STOP) that will test a new drug combination to improve treatment and control of soil-transmitted helminths; and Air-NB, an ERC

“In 2018, for every € invested by our trustees, we attracted 3€

Advanced Grant to study the effects of air pollution on the developing brain.

We reached a new record number of participants in our training and education programmes, while we reinforced our expertise in capacity building activities as well as in the evaluation of such activities. Furthermore, our position as leading think tank in global health was consolidated - among the top 10 worldwide, according to the University of Pennsylvania – and our growing presence in media (TV, radio, newspapers, and online) has helped us gain visibility and social media impact.

The previous results clearly reflect a strengthening of the competitiveness and outcomes of our institution since the completion of the merger. It is now time to look ahead with a long-term strategy, a process that is well advanced with the submission of the Severo Ochoa award proposal. We have agreed with our Board of Trustees that this will be the core of our long-term strategic plan- a plan that should best position ISGlobal to face the huge challenges that lie ahead, including the unfinished agenda of communicable and poverty-related diseases in LMICs and the ongoing epidemic of non-communicable diseases worldwide. With the strategic plan to 2023, we look forward to strengthening our scientific approaches by developing new capacities in cross-disciplinary areas such as e-health and personalised sensors, big data and data science, and impact assessment and implementation science.

Additionally, we must continue to strengthen our institutional cohesion and take new steps to attract new talent and renovate leadership in the near future. Finally, we must update the role of our International Global Health Partnership Board, a group of partners committed to improving global health. This will only be possible with the contribution of every member of the institution, and with the support of our trustees and the many funders involved.

The ongoing momentum achieved by ISGlobal is the result of a dynamic and diverse institution, with almost 400 people from 39 different nationalities. We thank you all for these excellent results and we invite you to keep on working together to make this world a better and more equitable place to live in.

Highlights

Dadvand P,
Environ Health Perspect.
2018, Feb;126(2):027012.

Guxens M,
Biol Psychiatry.
2018, Aug;84(4):295-303.

Alemany S,
Environ Health Perspect.
2018, Aug;126(8):087001

1. Green Brains

Contact with nature seems to play a defining role in our health. In a series of related studies, we provide further evidence for the benefits of green spaces -and the detrimental effect of air pollution- on the developing brain.

Children living in greener residential areas had a larger volume of white and grey matter in certain areas of the brain, better working memory at school, and reduced inattentiveness. Furthermore, we showed that children carrying a risk gene for Alzheimer's disease might be more vulnerable to the adverse effects of air pollution. These results set the bases for BiSC, a project that aims to assess the effect of air pollution on brain development in children, before and after birth.

Bancells C,
Nature Microbiol.
2019, Jan;4(1):144-154.

2. A Quick Path to Sex

Transmission of the malaria parasite from human to mosquito requires its conversion from the asexual to the sexual form. We showed for the first time that the malaria parasite *Plasmodium falciparum* can do this using an "express pathway", which is faster than the conventional pathway and could favour its survival and transmission in certain conditions.

These results provide important information on the parasite's lifecycle and may help design new strategies aimed at interrupting its transmission.

Milà C.
Environ Sci Technol.
2018, Nov;52(22):13481-13490.

3. When, Where and What?

In a study carried out within the CHAI project, we used an innovative combination of techniques to measure personal exposure to fine particulate matter (PM2.5) in a periurban area of Hyderabad, India.

We found that men and women were exposed to levels well above the limit recommended by the WHO, and that individuals engaging in activities related to industry, smoking, and food preparation were the most exposed. The findings also underline the need to foster access to clean energies in the kitchen.

Mitjà O,
The Lancet.
2018, Apr;391(10130):1599-1607

4. Adjusting Course

Yaws is a skin disease that mainly affects underprivileged children in tropical regions and causes disability and social exclusion. Our previous work in Lihir Island, Papua New Guinea, laid the foundation for the current WHO strategy to eradicate yaws: treat entire communities with a single dose of azithromycin.

However, the long-term follow-up of treated populations has revealed two major issues. First, eradicating the disease will require repeated rounds of mass administration, to ensure everyone receives the treatment at least once. Second, the eradication strategy will need to monitor for the emergence of antibiotic-resistant bacteria.

García-Saenz A,
Environ Health Perspec.
2018, Apr;126(4):047011.

5. Blue Light at Night... is Not Shepherd's Delight

Exposure to artificial light at night disrupts the circadian rhythm, which in turn may raise the risk of developing certain types of cancer. We used medical data from over 4,000 participants in the MCC-Spain Project, and assessed their indoor and outdoor exposure to artificial light.

Results showed that participants exposed to higher levels of blue light had a higher risk of developing breast or prostate cancer as compared to the less-exposed population. Given the ubiquity of artificial light at night, determining its effect on cancer risk is a public health issue.

www.mamahproject.net

6. How to Protect 12 Million Women

Pregnant women living in malaria-endemic regions are particularly vulnerable to the disease. For pregnant women infected with HIV, the danger is even greater since the recommended treatment to prevent malaria during pregnancy is not compatible with an antibiotic taken by HIV patients.

This year we launched MAMAH, an EDCTP-funded trial to be conducted in Gabon and Mozambique, with the aim of testing an alternative drug for preventing malaria in pregnant, HIV-positive women. If successful, the project could help improve the health of millions of seropositive women – and their babies - in sub-Saharan Africa.

Achebak H,
PLoS Med.
2018, July;15(7): e1002617.

7. Impervious to Heat?

We analysed daily temperatures and deaths in 47 Spanish cities for every summer, between 1980 and 2015.

Although the average summer temperatures have increased at a rate of 0.33oC per decade, the risk of heat-related mortality has in fact decreased. This may reflect improvements in housing, air conditioning, or health services. It is not clear whether this trend will continue in the future, and our team is now analysing data from Europe as a whole.

Torrico F,
Lancet Infec Dis.
2018, Apr;18(4):419-430.

8. The Quest for Better Drugs

More and better drugs are sorely needed to treat Chagas, a neglected disease that affects 6 million people worldwide. This year we published the results of the first clinical trial for a new drug candidate, E1224.

The drug was safe and well tolerated, but its suppressive effect on the parasite was transient. These results, however, open the possibility of combining E1224 with the currently used drug, benznidazole, in order to increase efficacy or decrease side effects.

9. Absence of Evidence... for the Moment

The amount of TV antennas, mobile phones, microwaves, and other sources of electromagnetic fields (EMF) has drastically increased over the last decades, but evidence of their effect on human health is still limited. In an attempt to understand whether exposure to EMF at work increases the risk of developing brain tumours, we performed a study with more than 4,000 brain tumour cases and 5,000 controls from seven European countries.

Despite major improvements in assessing individual exposure, we found no clear evidence for an association between EMF and brain tumours.

Vila J,
Environ Int.
2018, Jul;119:353-365.

Fuente-Soro L,
J Int AIDS Soc.
2018, Apr;21(4):e25095

10. More is Not Better

In 2014, UNAIDS set the goal to diagnose 90% of people infected with HIV, treat 90% of seropositive people, and achieve viral suppression in 90% of treated persons by 2020. A study performed by our group in Southern Mozambique revealed that almost 40% of people previously diagnosed with HIV do not disclose their status, leading to unnecessary retesting during diagnosis campaigns.

These results suggest that we may be closer to the first UNAIDS target than previously thought, and that we must concentrate efforts on reaching HIV-positive people that have dropped out of care.

11. The Sea that Joins Us

Two years ago, in collaboration with the Moroccan Ministry of Health and the Spanish Agency for Development Aid, we established a Mediterranean Health Observatory to work on global health issues of particular relevance to the region and in line with the Sustainable Development Goals (SDGs).

This year we strengthened the Observatory's activities in the fields of environmental health (with four workshops aimed at increasing access to water, sanitation and hygiene and improving air quality) and migrant health (with the mapping of non-governmental institutions and associations working to attend the health needs of migrants in Morocco).

12. Build Capacities, Evaluate Results

In 2018, our Education and Training Department gained considerable reputation in two aspects related to capacity-building: training and evaluation.

Regarding the first aspect, we organised workshops on scientific management for researchers from Portuguese- or French-speaking African countries, as well as training on regulatory and research capacities regarding infectious disease diagnostics in Monrovia, Liberia. Regarding the second aspect, the Special Programme for Research and Training in Tropical Diseases (TDR) tasked us, for the second consecutive year, with evaluating the implementation and impact of their Clinical Research & Development Fellowship.

Countries where ISGlobal coordinates projects and networks

Long-term strategic alliances

Bolivia

Mozambique

Morocco

Main international institutions with whom ISGlobal published scientific articles in 2018 (Web of Science, 2018)

UK Imperial College London / University of London

France Inserm

Mozambique CISM

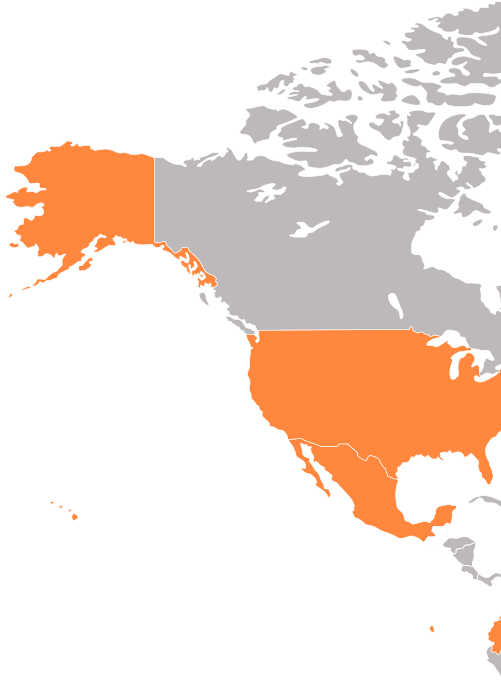
Switzerland Swiss TPH / University of Basel

The Netherlands Erasmus University Rotterdam / Utrecht University

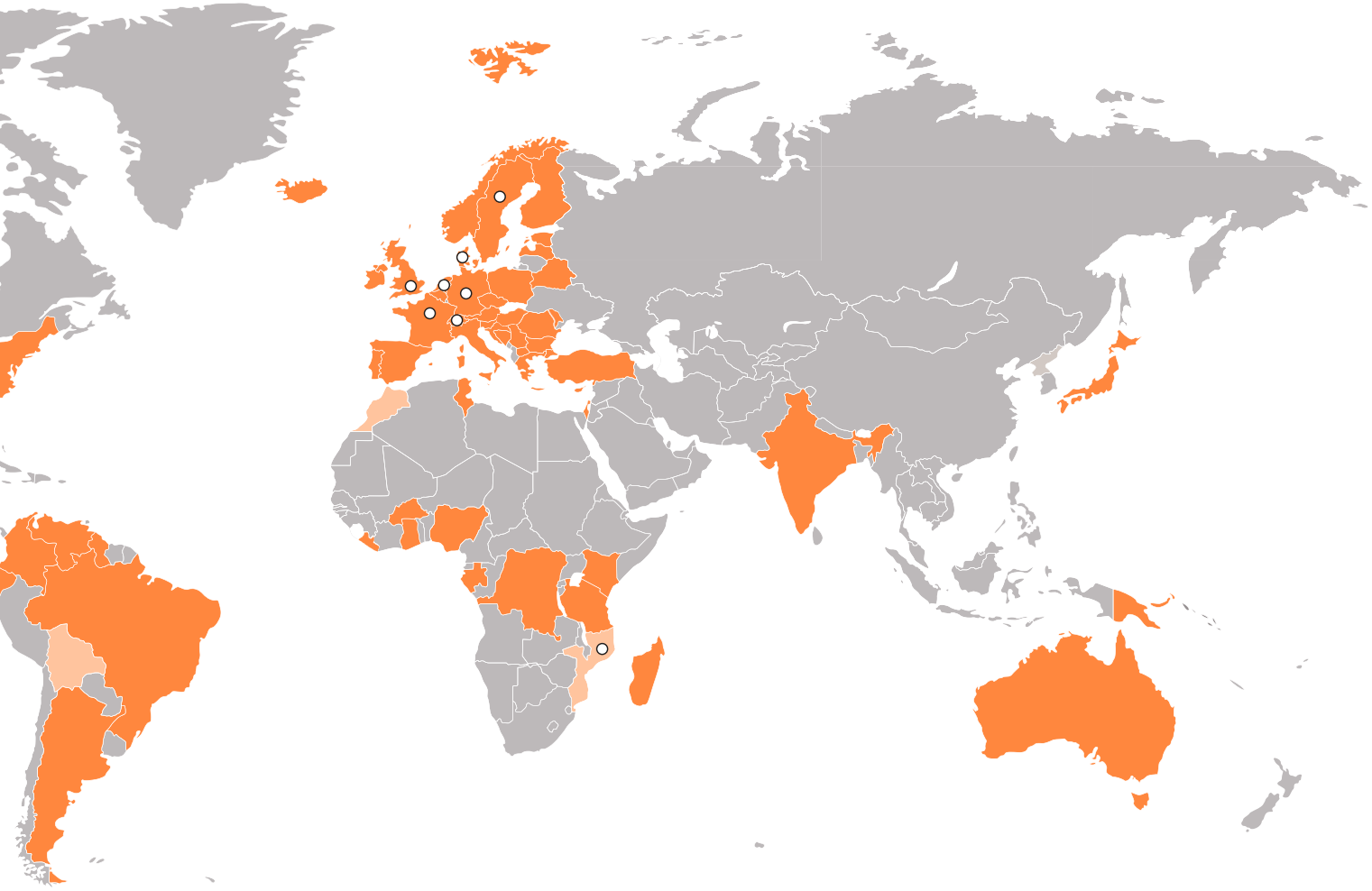
Sweden Karolinska Institute

Denmark University of Copenhagen

Germany University of Munich



A Global Presence



Facts & Figures 2018

HR EXCELLENCE IN RESEARCH

Institució CERCA Centres de Recerca de Catalunya

Consortium of Universities for Global Health

tropEd Network for Education in International Health

WHO Collaborating Centre for Malaria Control, Elimination and Eradication

Total number of staff

407

Gender

66%

34%

Total ongoing research projects

135

Nationalities

39

Average age

35

Total budget

29,146,984 €

Total number of publications

447

Q1 87%

D1 63%

PhD theses defended

24

Women 79%

International research projects

75

35 as coordinated

Core - **27%** Competitive - **73%**

Market launch

1

Patent portfolio

12

2 submitted in 2018

Total students trained

914

Ranked 9th Global Health Think Tank

(Index Univ. Pennsylvania 2017)

Policy publications

6

Digital report

2

Media impacts

6,783

Total number of outreach activities

50

Target audience reached

2,150

Full version of the Annual Report available here: 2018.isglobal.org

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Ajuntament de Barcelona

Fundación Ramón Areces