



Maximizing the Impact of German Engagement in Global Health

GLOHRA & VfG
April 2022

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Agenda

Study scope and methodology

Background: Germany's role in global health

Study findings

Key recommendations

Annex

Study insights and recommendations based on qualitative and quantitative analyses

Aim of this study



Make a **tangible contribution** to the Global Health strategy:

- Harness **expertise of Germany's GH research community** in addition to GLOHRA Engaged components “open call” & “GLOHRA day”
- Derive **actionable recommendations** on how to maximize Germany's impact in Global Health

Focus areas of this study



Focus: German GH system with relevant research disciplines extending beyond biomedicine¹

Methodology

- **35 interviews with researchers and policy stakeholders**
 - 27 interviews with GH researchers from all GLOHRA research areas¹
 - 5 interviews with int. GH experts (BMGF, WT, LSHTM, Karolinska)²
 - 3 interviews with GH policy stakeholders (BMBF, DLR)
- **103 survey responses** from GLOHRA community
- **4 case studies on selected GH R&D priority topics from GH strategy:** AMR, cancer, climate & health and vaccines
- **3 case studies on research-policy links** at LSHTM, Karolinska Institute as well as SAGE UK
- Analysis of **primary sources** for GH data, e.g., funding

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Study supported by external consultancy Value for Good

Institutional and systemic enablers and barriers assessed along four dimensions

Germany's role in Global Health



Status-quo on positioning and priority topics

- | | |
|------------------------------------|--|
| <p>GH Funding Models</p> | <ul style="list-style-type: none"> • Financing of Global Health research activities • Enablers and barriers to accessing funding |
| <p>GH Research Collaboration</p> | <ul style="list-style-type: none"> • Enablers and barriers to interdisciplinary GH research • Collaboration in international and cross-sectoral settings |
| <p>GH Implementation</p> | <ul style="list-style-type: none"> • Translation research: From bench to bedside to Global Health • Intervention research: How research can assist GH delivery |
| <p>GH Research Policy Dialogue</p> | <ul style="list-style-type: none"> • Enablers and barriers to impactful research policy dialogues • Integration of GH topics into political structures |



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“Global health can only be done right if **cross-structural thinking** is applied - all disciplines belong together.”

“Germany is one of the big countries and **we have a responsibility.**”

“Germany is a **late bloomer** in the GH scene.”

Germany's role in Global Health





Momentum and R&D skills make Germany well equipped to become a leader in GH

Highlights
2020/21



United States

- Leader in Global Health R&D, funding and int. presence, however, **recently retreating from global leadership** reducing WHO funding during pandemic by 25% in 2020/21



Germany in the EU

- 2020 C. Drosten, Charité, developed **1st SARS-CoV-2 PCR test**
- 2020 BioNTech developed **first Covid-19 vaccine**
- 2020/21 Germany became **WHO's top donor** overtaking US
- 2021 **WHO launched Hub for Pandemic and Epidemic Intelligence** in Berlin
- 2021 EU launched **Global Gateway** initiative with up to €300bn funding; **Health as one of 5 priorities**



China

- 2020/21 Ambition to build **"Health Silk Road"** as well as "Vaccine diplomacy" push – sending medical teams and pledging **600 million Covid-19 doses for Africa**

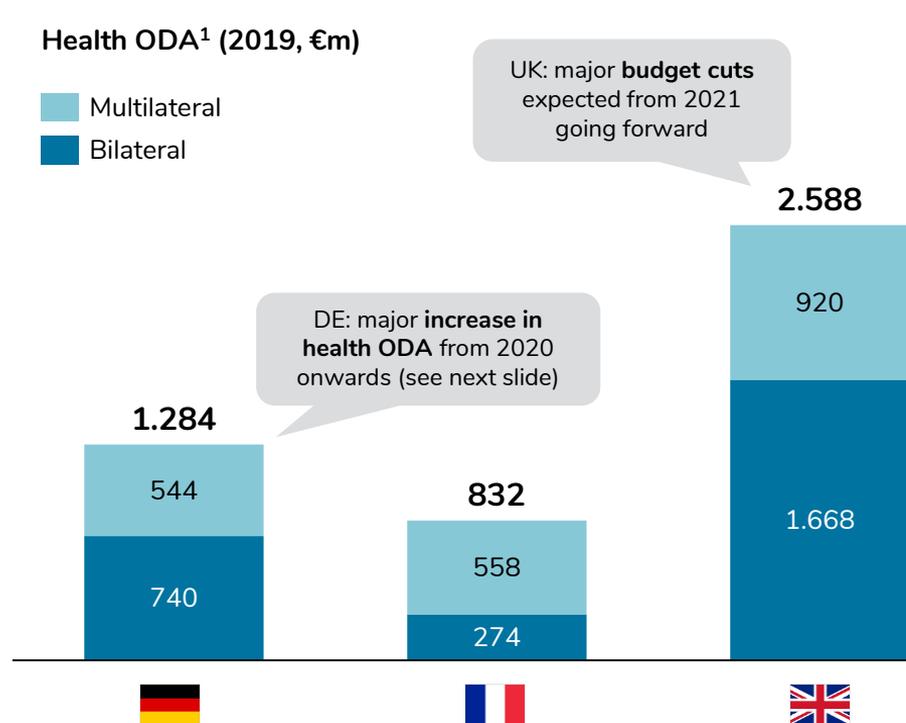
As part of a strong EU, Germany has emerged as a key player in GH –
Stepping up R&D is necessary to scientifically support this engagement



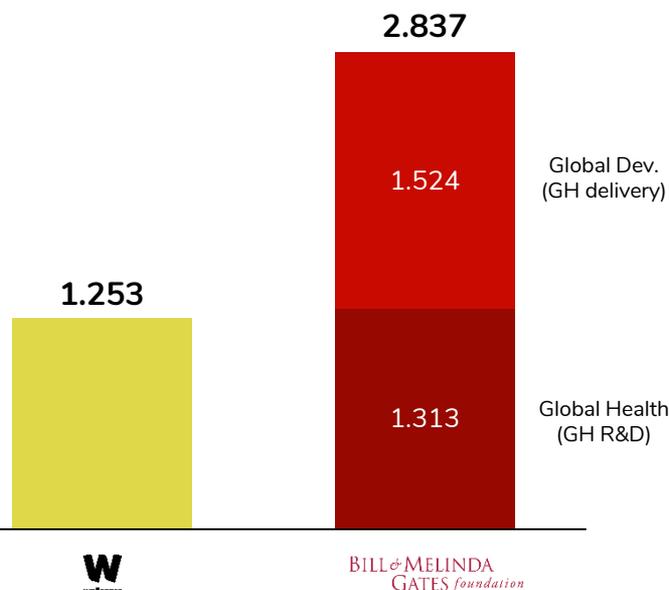
Health was an important priority for Germany with ~€1.3bn ODA funds, even before Covid-19

Health ODA¹ (2019, €m)

■ Multilateral
■ Bilateral



Philanthropic Global Health funding (2019/20, €m)



1. ODA = Official development assistance (defined by OECD Development Assistance Committee as "government aid that promotes and specifically targets the economic development and welfare of developing countries").

Sources: OECD Creditor Reporting System (CRS), FCDO annual report 2020, WT annual report 2019/20, BMGF annual report 2019.



In 2020, Germany expanded its role in GH by significantly increasing financial engagement



Federal Ministry
of Education
and Research

BMBF €3.3bn
(2020)

➤ ~33% from 2019



Federal Ministry
of Health

BMG €0.3bn
(2020)

➤ ~30% from 2019

Largest donor to
WHO in 2020-21



World Health
Organization

€1.1bn (2020-21)¹

➤ ~350% from 2018/19

COVAX

€1.1bn (2020/21)



The Global Fund
To Fight AIDS, Tuberculosis and Malaria

€1bn (2020-22)

➤ ~32% from 2017-19



Gavi
The Vaccine Alliance

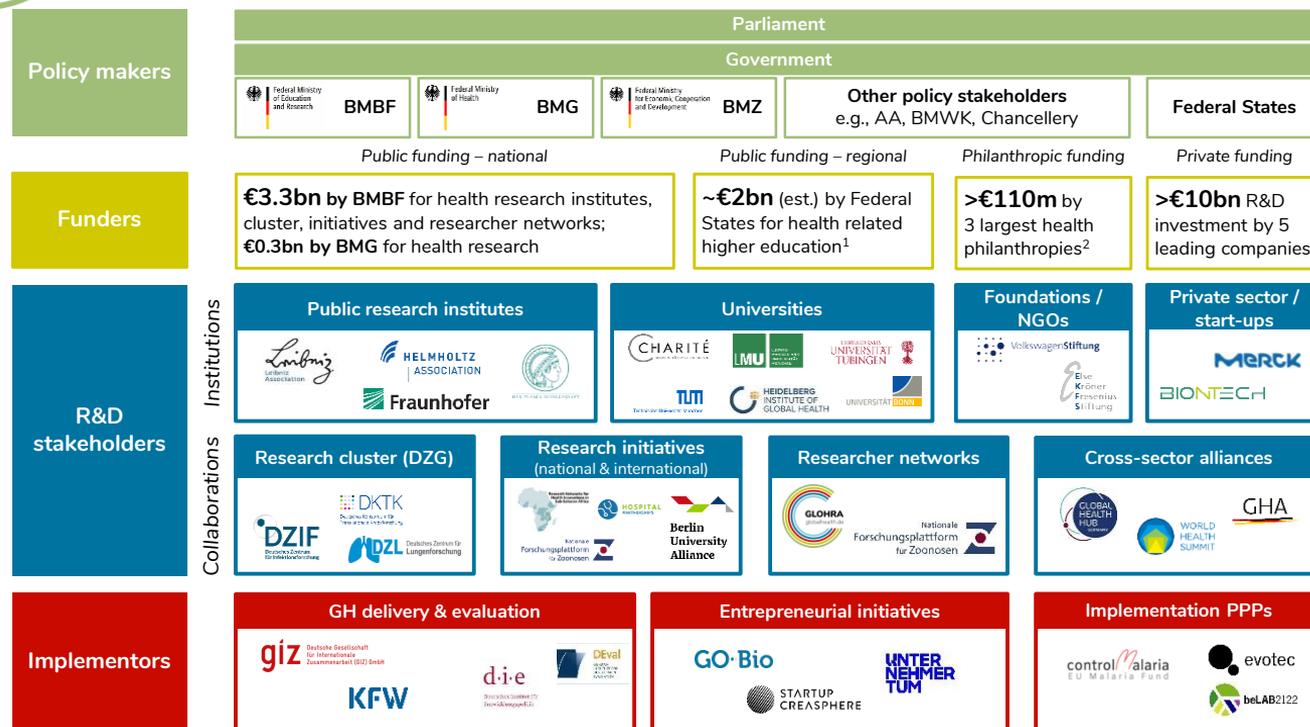
€600m (2021-25)

➤ ~12% from 2016-20





German (Global) Health research ecosystem



Note: not exhaustive

1. EURYDICE 2019 federal funding €26.8bn*6.4% medical and life science students (destatis) , 2. Combined 2020 Health funding by EKFS (€63m), Robert Bosch Stiftung (~€25m), Volkswagen Stiftung (€23m).

3. Combined 2020 R&D investments by Boehringer Ingelheim (€3.7bn), Bayer Pharma AG (€2.8bn), Merck KGaA (€2.3bn), Siemens Healthiners (€1.5bn), BioNTech (€0.6bn). 4. Representing GH research community.



Increased interest among researchers to jointly tackle today's Global Health challenges

>750 researchers across >100 institutes joined GLOHRA network

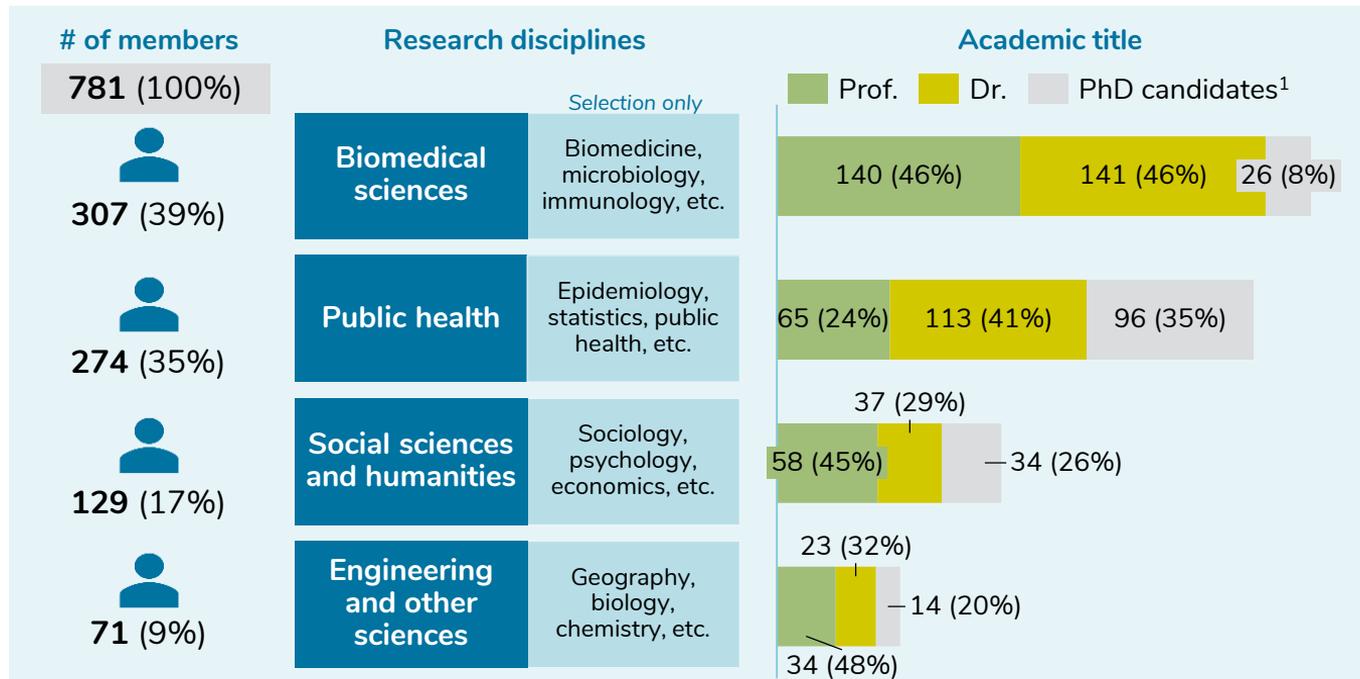
GLOHRA Vision

A healthier world supported by Global Health research.

GLOHRA Mission

Tackle today's Global Health challenges via interdisciplinary and collaborative research.

We seek to do this by **building a Global Health research community** in Germany, propelling research, **supporting the next generation** and **enhancing cross-sector collaboration** in Global Health research.



1. incl. blanks.

Source: GLOHRA Directory as per Feb 1st, 2022, VFG analysis.



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“It is important to understand the need for flexibility.”

“In Germany, funding structure rewards disciplinary excellence over interdisciplinary research.”

“Innovation in funding procedures would reduce paperwork from applicants.”

Funding Models



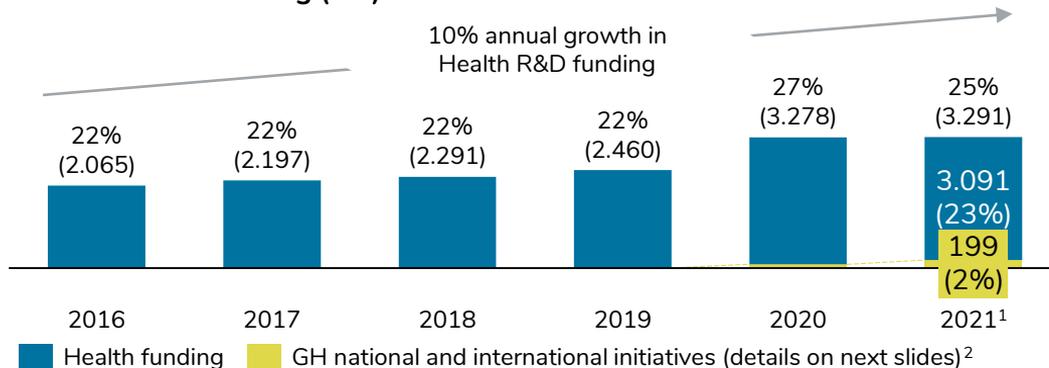
Health funding continuously increasing, but growth of GH research funding not clear

Status quo: Funding share of GH investments difficult to determine due to heterogeneous labelling of GH activities

Only small share of health research funding clearly linked to GH initiatives

➔ many GH research activities (e.g., DZIF) are not accounted for

BMBF expenditure on Health R&D 2016 - 2021, % of total R&D funding (€m)



Recommendations: Develop and implement consistent labelling of GH activities

- 1 Derive **criteria for precise labelling of GH research activities** aligned with international standards
- 2 Quantify **overall funding and scope** of GH research activities in Germany
- 3 **Adopt GH criteria** in future public grants

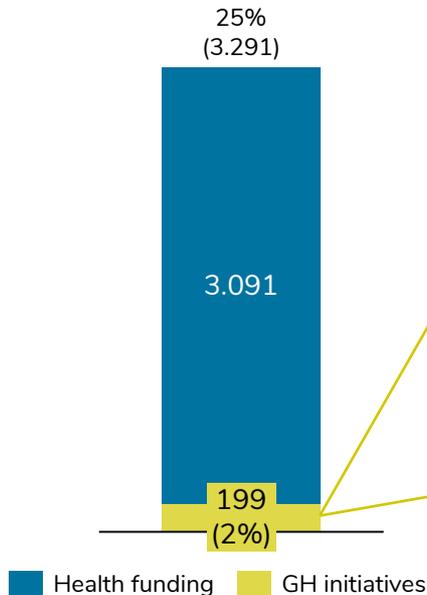
1. Target value, 2. GH international initiatives listed in BMBF federal budget from 2020 onwards.

Sources: BMBF Datenportal, Table 1.1.6, BMBF Globale Gesundheit, BMBF federal budget plans 2020 (p. 82-83) and 2021 (p. 87), BMBF website "Forschung fördern – Globale Gesundheit."

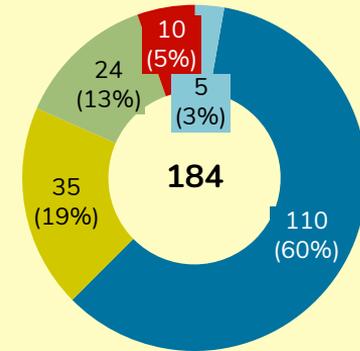


Most of labelled GH funding directed at int. level – only indirectly benefitting German R&D

BMBF expenditure on Health R&D 2021, % of total R&D funding (€m)



International GH funding initiatives (2021¹, €m)



Multilateral funding

Coalition for Epidemic Preparedness Innovations (CEPI)

Bilateral funding

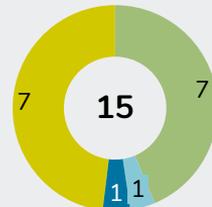
Antimicrobial Resistance (AMR)

Product Development Partnerships (PDPs)

Research networks for health innovations in Sub-Saharan Africa

European and Developing Countries Clinical Trials Partnership (EDCTP)

National GH funding initiatives excl. Covid-19 funding (2021², €m)



Junior research groups in infection research

Nat. research network for zoonotic infectious diseases

Nat. research platform for zoonoses

Networking platform for Global Health research (GLOHRA)

1. Target value, 2. VfG analysis.
Sources: BMBF federal budget plan 2021, p. 87, BMBF website "Forschung fördern – Globale Gesundheit."

Large and long-term GH grants as key lever to achieve higher impact

Current grant structure not conducive to researchers' desired outcomes

Varying research needs reflected in different grant structures – GLOHRA funding as promising approach but recommended to sharpen profile for clear positioning

54% of GH researchers¹

rank stepwise funding (e.g., pilot with option for multi-year extension) as one of the most important characteristics of an ideal funding program for interdisciplinary GH research

“Where is the **€ 1 million grant** to do some GH research?”

“**Ensure long-term funding** in order to provide the opportunity for proper collaboration development”

“[GLOHRA] funding **sums cannot cover high costs** of i.e., overhead [...] and interdisciplinary partners which are criteria to receive funding”

Flexible seed funding

Pilot new research approaches

- Up to ~€50k/year funding to test new ideas
- Minimal application and review effort
- Funds based on academic achievement + willingness to work across disciplines



Seed grants up to **\$30k / year** for innovative solutions to GH problems



- Up to ~€120k/year for max. 2 years to research that tests new ideas or ideas that can be scaled up
- Medium application effort, e.g., interdisciplinarity as key requirement, 2-step-process (proposal – formal application)

High-volume grants

Enable large-scale “flagship projects”

- Min. €250k-€500k/year: covering required investments to address most pressing GH challenges
- Funding cycles (min. 5 years) allow for stronger focus on research as less capacity for securing funding needed

BILL & MELINDA GATES foundation



~€1m²
(2-4 yrs.)

~€2m³
(3-5 yrs.)

Funding scope & requirements



“South-North exchange should be a core activity for training GH researchers.”

“Collaboration is an **extra effort and the academic system does not reward it**; for the career it’s still better to focus on your topic.”

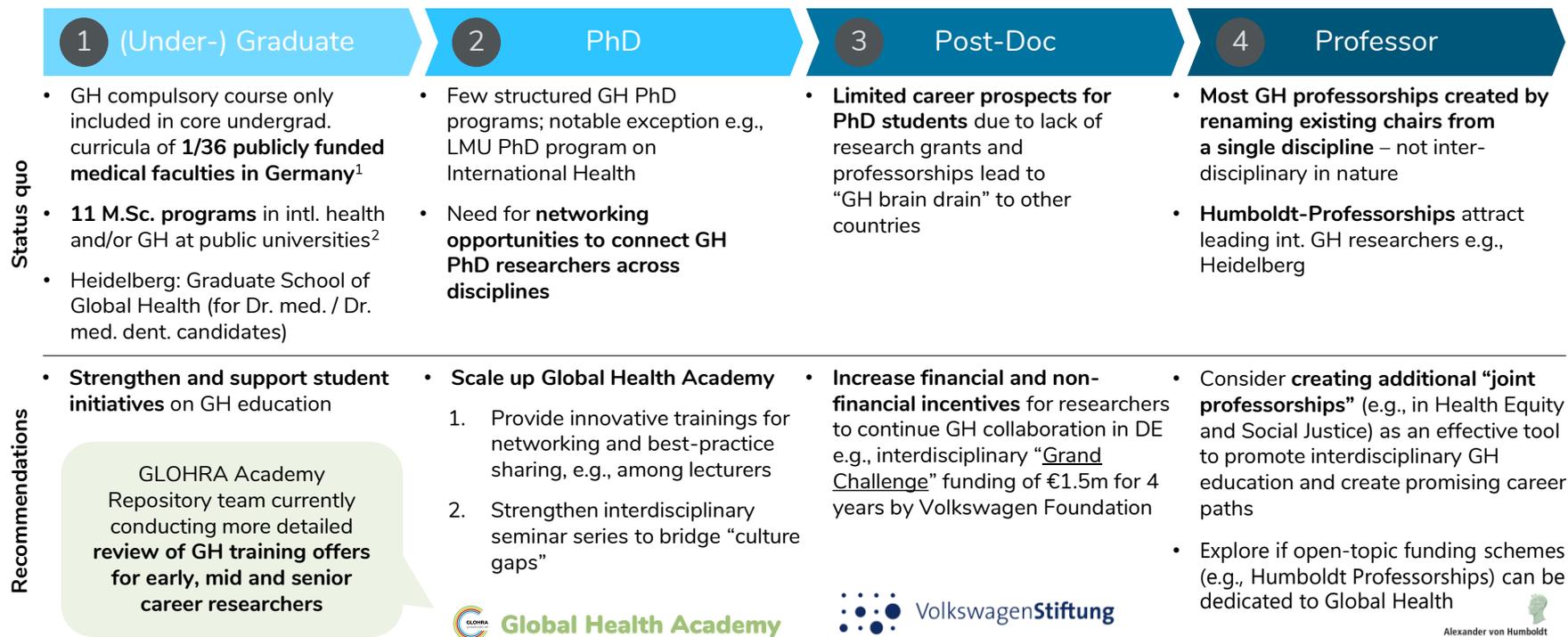
“[GH] structures need to be **long-term** e.g., via **fellowships** that support structural links between countries.”

Research Collaboration





Interdisciplinary approaches can be further integrated in German academic system



1. As per Karduck L, Behnke AL, Baier A, Gotham, D, Grabitz P, Lennartz N, et al. (2020), 2. Hochschulkompass. Sources: VfG analysis, GHA-D, Volkswagen Stiftung, Charité, Alexander von Humboldt Stiftung.





Best global practices can inform the design of attractive career paths



Master in Global Health

- Collaboration between **5 Belgian universities**
- **Flexibility** to take courses with highest specific relevance at preferred universities in year 2
- **Individual mentorship** to ensure coherence and focus on career development



Fogarty GH Training Program

- **12-month** research fellowships for PhD/MD and post-docs in **Global South** (>20 fellows p.a.)
- **Rigorous mentorship** with US and LMIC based mentors
- **\$50-60k stipend + research support** (lab supplies etc.)
- Awarded by a consortium of universities



Collaborative Awards

- **Up to £4m** funding for up to 5 years for GH problems that can only be solved collaboratively (11 awards in FY 2019/20)
- Research experience in **specific field and in collaborative research** required
- Collaborations can be **across sectors, borders, interdisciplinary** & beyond academia

Example project: “Remaking One Health: Decolonial approaches to street dogs & rabies prevention in India”
Set-up: Multidisciplinary researchers from 4 institutions in 3 countries



Government of Canada

Canada Research Chairs

- **7-year research chairs** (with maximum of 2 terms) for outstanding professors or associate professors with \$200k in funding p.a.
- **733 (39%) chairs allocated to health**
- **High degrees of flexibility** due to re-allocation
- **Embedded promotion of inter-disciplinarity & novel research areas** e.g., “2019 Canada Research Chair in Arctic One Health”





Innovative review processes important booster for GH research; challenges remain

Researchers agree on importance of interdisciplinary reviews

53% of GH researchers¹

rank interdisciplinary review process as one of the most important components for GH funding programs

“Bringing together different disciplines comes with huge payoffs but the review of proposals and papers will have to be reconceived.”

“Funding [proposals] needs to be reviewed by scholars with **better interdisciplinary knowledge.**”

GLOHRA review process offers relevant lessons learned for funders

GLOHRA review process



Current approach

- Evaluation criteria promoting interdisciplinary & transnational collaboration
- Review teams of 4 Steering Committee (SC) members from all GLOHRA research areas

Lessons learned

- Higher time invest since reviewers are not necessarily experts in the field
- Review focus shift from “Are our existing methods applied correctly?” to “What is the added value of interdisciplinary cooperation?”

Recommendations to boost GH research: Refine evaluation criteria & process



- 1 Make collaboration a core criterion for accessing GH funding e.g.,**

 - German integration in int. GH networks
 - Applicability for wider GH community
 - ...
- 2 Pragmatic balancing of reviewer expertise considering time-to-grant**

Suggested set-up (depending on grant):

 - **1-3 interdisciplinary champions** (e.g., from GLOHRA SC) checking collaboration potential and methods
 - **1-3 subject matter experts** checking quality of research and potential to achieve measurable outcomes





Research networks in Africa good start to institutionalize Global South collaboration

New call for proposals in progress

Networks pioneering collaboration between Germany and Global South

Up to €50m funding

for 5 German-African networks for 5 years (2016-2022) by BMBF

Innovative funding support

DLR-PT supporting German partners, GIZ supporting African partners

36 research partners

across 14 African countries conducting research on high-burden diseases and enhancing local clinical & laboratory practices

Local leadership

by African coordinators with majority of funding available for partners

38 PhDs

and 33 Masters' degrees funded

6 German institutions supporting networks in SSA¹; LMU Munich engaged in 3/5

Research Network



Research Areas

Surveillance programmes; diagnostics and outbreak control

African & German institutions

Germany: RKI
SSA: 7 Institutions across Burkina Faso, Cote d'Ivoire, DRC, South Africa



Non-communicable diseases; diabetes, hypertension and road traffic injuries

Germany: LMU Munich, University of Freiburg
SSA: 7 Institutions across Ethiopia, Rwanda, Malawi, Uganda, South Africa



Cysticercosis – neglected zoonotic disease

Germany: TU Munich
SSA: 4 Institutions across Tanzania, Zambia, Mozambique



Neglected tropical diseases lymphatic filariasis, loiasis and onchocerciasis

Germany: LMU Munich/DZIF, Bonn University
SSA: 3 Institutions across Tanzania, Ghana, Cameroon



Factors affecting the long-term sequelae of pulmonary tuberculosis

Germany: Borstel, LMU Munich/DZIF
SSA: 5 Institutions across Gambia, Tanzania, Mozambique, South Africa

Suggestion to continue promising start for establishing int. GH collaboration

- 1 Continue addressing inequities in GH research with Global South partners by promoting their leadership in 5+ years initiatives, **launching BMBF project calls to new networks, and increasing sustainability of existing ones**
- 2 Institutionalize partnerships by leveraging BMZ funding to (i) establish joint PhD programs at selected German /African universities, (ii) strengthen capacity for conducting clinical trials and for attracting sustainable financing (mitigating risks of structures disintegrating again)
- 3 Align networks with Germany's long-term GH strategy: **Further integrating networks into German research structures** - similar to UK's medical research councils in Uganda and the Gambia

1. SSA = Sub-Saharan Africa.
Sources: VFG analysis, BMBF, GIZ



“Real-world impact should become a criteria for funding; **prizes for implementation research** would be a good incentive.”

“We need to **think bigger**; what are really the criteria that make science matter?”

“Lots of **incentives exist** that can draw researchers and industry more into the **space of health issues with less commercial appeal.**”

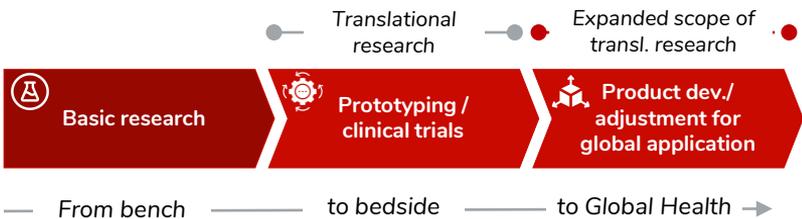
GH Implementation



Potential to strengthen GH implementation with translational and intervention research

Translational research (focus)

How can the gap between basic research and global application be closed?

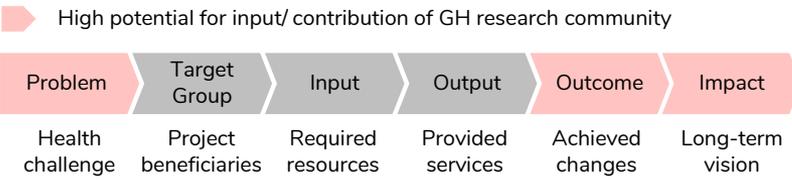


Recommended to further **increase support for expanded scope of translation research** to unlock innovation potential

Research on international development interventions

What are the biggest GH challenges development actors should address?
Do projects achieve desired outcomes?

Ideally, GH development interventions should be informed by research and evaluated against a Theory of Change:



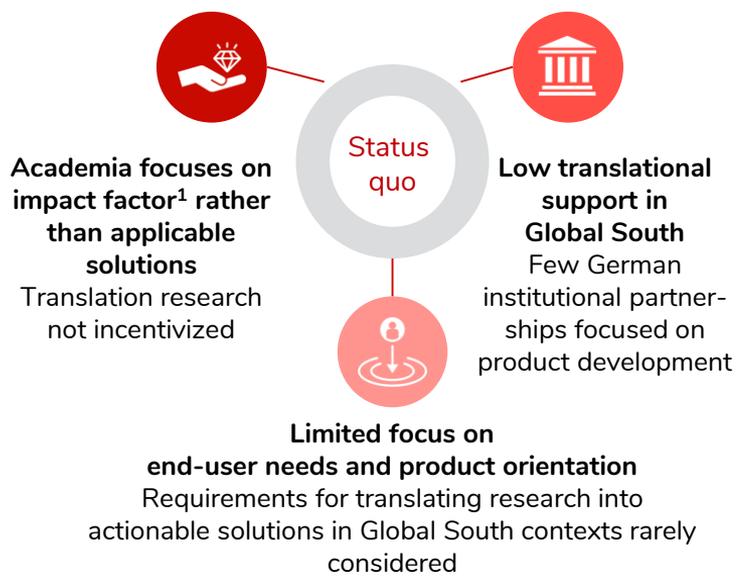
Low R&D share of BMZ bilateral funding (ODA);
Need for closer linkages between int. dev. practitioners and researchers (e.g., **challenge-driven calls, joint impact evaluations**)

Sources: Center for Global Development, VfG analysis; Photos: Pexels.



Promoting translational research can help unlock application potential

Status quo: Institutional structures are not focused on real-world impact and translation



Recommendation: Proactively encourage more translational research



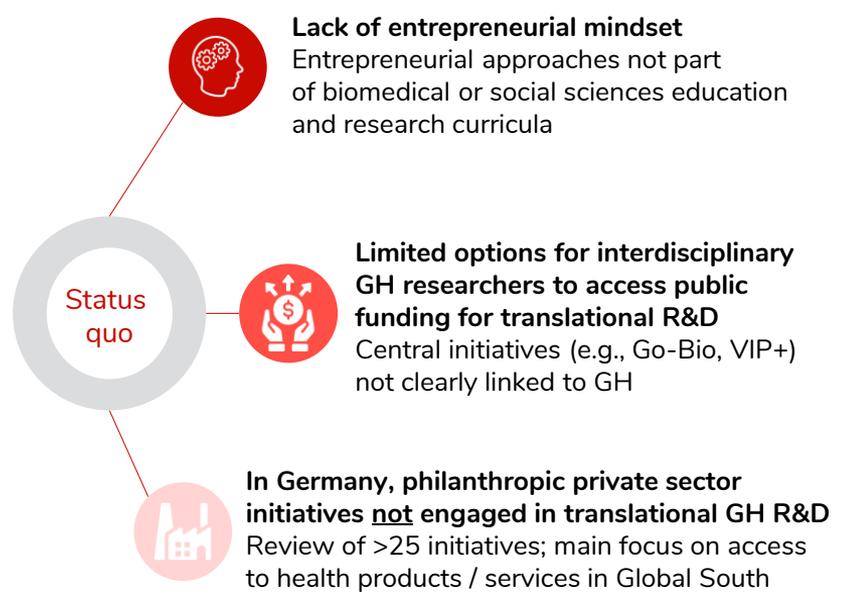
1. Academic output, 2. Conducted with CONRAD and other consortium partners as part of the USAID Microbicide Product Introduction Initiative. Sources: UK Research Excellence Framework 2021, BMGF website, IDEO ; VfG analysis.



Bridging the translation gap requires funding, partners and entrepreneurial skills



Status quo: Translational GH R&D challenging due to lack of education and cooperation opportunities in Germany



Sources: HBS course catalog, websites of Go-Bio, J&J, EU Malaria fund and further companies (see annex).

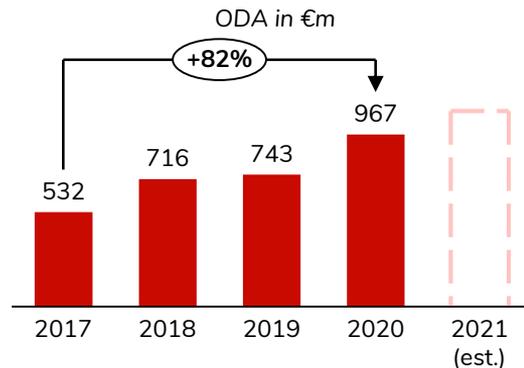
Recommendations: Strengthen research environment that **closely links research and implementation**





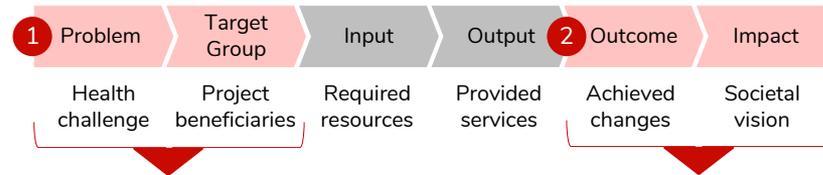
GH delivery by German development agencies would benefit from researcher engagement

Bilateral health development aid almost doubled from 2017 to 2020



- **Low R&D funding vs. Health ODA** (€59m vs. €967m) in 2020
- **Increased opportunity and need to strengthen links between academia and development agencies** for program design and evaluation

Programs implemented by GIZ and KfW should be more closely linked to (1) scientific findings and (2) rigorous impact evaluations; success stories exist and can be leveraged



Quality of medicines in Malawi: How to improve maternal health

Research funders: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Researchers: ERBENHARD KARLS UNIVERSITÄT TUBINGEN

Synergies between research and development assistance: Presentation of results at workshops for local stakeholders (e.g., hospitals, NGOs and development agencies) to inform new projects to counter maternal mortality in developing countries



PM-JAY: Evaluation of the largest health insurance program in India

Project funders: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Evaluators: HEIDELBERG INSTITUTE OF GLOBAL HEALTH, die, CITY OF TUBINGEN

Evaluation budget: Approx. € 1m

Approach: Joint research team led by Heidelberg Institute for Global Health (HIGH) **assessing outcomes of Indian insurance scheme** for > 500M people



“The **institutional landscape** of German GH policy advice can be improved.”

“GLOHRA could strengthen science-policy interaction by **training researchers** in this area.”

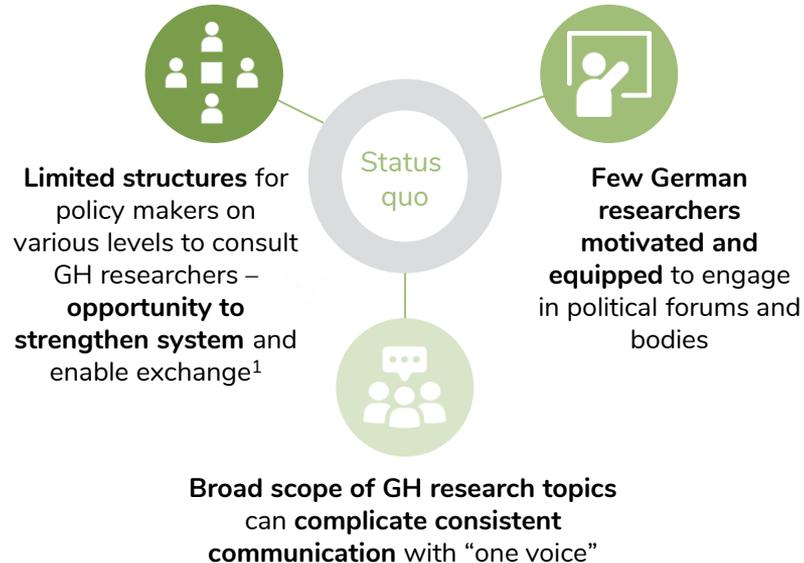
“A **fragmentation [of ministries]** can also be seen in the resolutions - it shows that there is limited mutual understanding.”

Research-Policy Dialogue



Institutionalized exchange needed for an effective research policy dialogue

Status quo: Limited institutionalized engagement between researchers and policy makers



¹ Today, focused around Leopoldina and ad hoc initiatives, e.g., Covid expert group.

Recommendations: GLOHRA well suited to broker between GH researchers and policy makers from various institutions/ministries





SAGE best-practice for providing coherent scientific advice to UK government during crisis



During crises, the Scientific Advisory Group for Emergencies (SAGE) is responsible for providing UK government with coherent, coordinated science-based advice

“The role model we are looking at [for Germany] is SAGE.”



Objectives

- Inform government’s response to crisis
- Interpret complex or uncertain scientific evidence

Composition

- Representation in core group
 - **Researchers:** 20-30 experts based on relevant disciplines
 - **Government:** Representatives highlighting considerations for policymakers

Approach

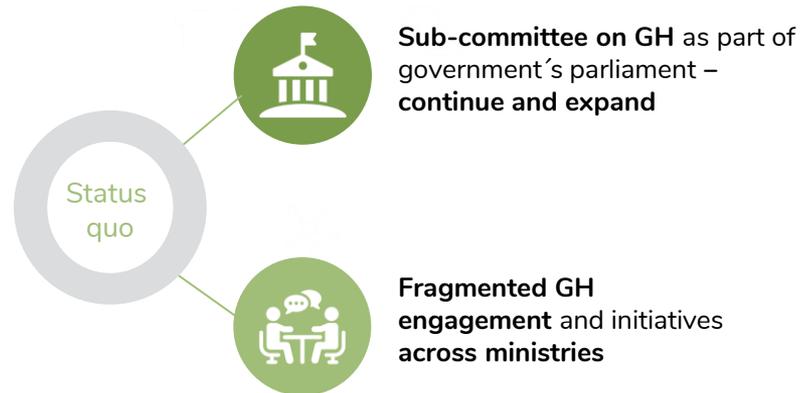
- SAGE is chaired by the **Government Chief Scientific Adviser**
- Next to the **core group**, **subgroups** with **200-300 diverse experts** across all career levels work on focus topics, e.g., modelling
- **Experts** change based on topic and are **sourced from expert lists**

SAGE example COVID-19 outbreak:

- **Participants** coming from ~20 different institutions (incl. LSHTM)
- SAGE meets **twice a week** – first meeting on **January 20th 2020**
- **Subgroups:**
 - Influenza Group on Modelling (40-45 Participants)
 - Influenza Group on Behavioral Science (18 participants)

GH requires increased collaboration and coordination across government

Status quo: GH policy-making scattered across various government bodies, not only BMBF and BMG



Recommendations: Drive GH agenda coherently across ministries by aligning priorities and initiatives constantly



Facilitate exchange and cross-party cooperation in parliamentary bodies



Expand activities of **parliamentary sub-committee on Global Health** to further drive German GH agenda



Drive coherence through a **GH coordinator position in chancellery**, e.g., for advisory board and key initiatives



Continue and encourage exchange of ministries



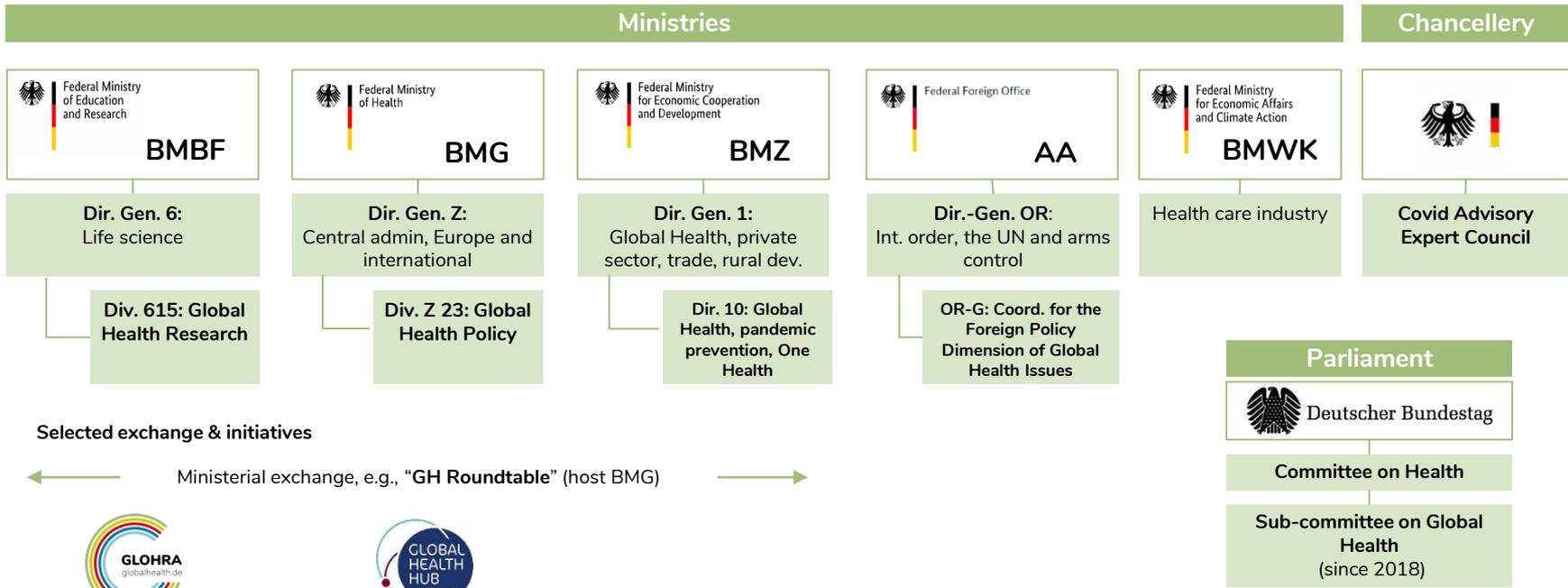
Ensure **exchange between GH initiatives** under different ministerial roofs, e.g., BMG, BMBF & BMZ

Regular cross-ministerial "roundtable on GH", on both state secretary and working levels



GH policy-making scattered across various govt bodies

Further changes by new government in progress





Germany to expand role in multilateral initiatives beyond “only” funding

2021 GH momentum



Germany's pol. & financial role



Links to German researchers



Recommendations for way forward



- **Leading role in vaccine development** in COVID-19 pandemic response
- **Growing industry and political interest** and funding

- **€140m** German funding in 2020
- **CEPI Board** member (Veronika von Messling, BMBF)

- **Scientific Advisory Committee** (Christian Drosten, Charité)
- Funding for German organizations (CureVac & IDT)



Take **increased ownership** and **continue senior representation** in board and committees



- **WHO Hub for Pandemic and Epidemic Intelligence** established in Berlin
- Focus on collaboration through better **data, analytics** and **decisions**

- German Chancellery and Ministry of Health mobilized **€100m** to fund the WHO Hub for first **3 years**

- **RKI and Charité** as **foundational partner** providing project-based support and “connecting the hub to initiatives in both institutions”



Connect **German research institutes** to WHO Hub initiatives through **RKI and Charité**



- **HERA launched** by EC as part of “**European Health Union**” to respond to health emergencies
- Support **development for medical countermeasures**

- **€6bn** EU budget over **6 years**; **>€1bn¹** from Germany

Further engagement to be assessed as HERA is still new and comes with strong potential due to size and reach



Send **representative** to **HERA board** and connect research institutes with **HERA networks** to be established in 2022

1. Based on overall share of EU contributions in 2020 (approx. 18%).
Sources: VFG analysis, CEPI.com, WHO.int, ec.Europa.



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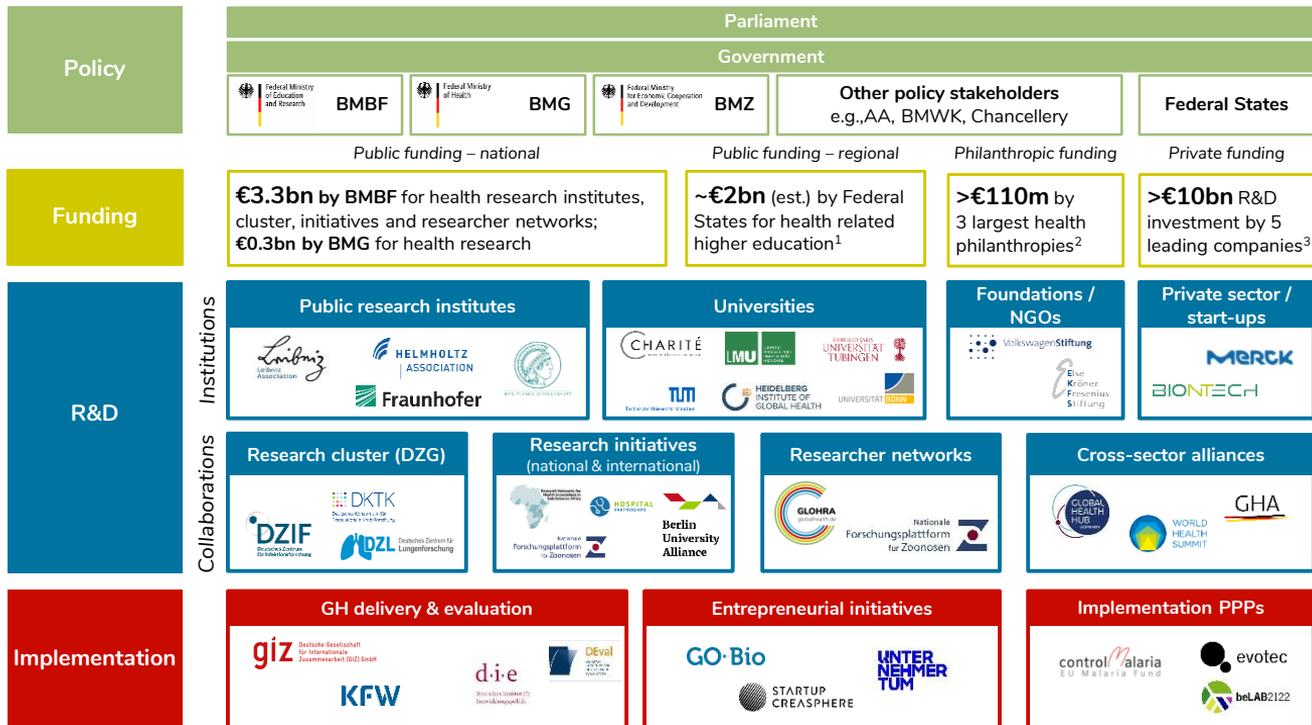
Study findings

Key recommendations

Annex



Key recommendations to strengthen the German GH research ecosystem (1/2)



- ### Key recommendations
- A** Increase visibility and transparency of Germany's GH R&D investment
 - B** Bring the best minds together on GH R&D
 - C** Encourage implementation-oriented GH R&D
 - D** Translate GH R&D insights into impactful policies
 - E** Strengthen GH R&D networks in Germany

Note: not exhaustive
 1. EURYDICE 2019 federal funding €26.8bn*6.4% medical and life science students (destatis) , 2. Combined 2020 Health funding by EKFS (€63m), Robert Bosch Stiftung (~€25m), Volkswagen Stiftung (€23m).
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Key recommendations to strengthen the German GH research ecosystem (2/2)

A

Increase visibility and transparency of Germany's GH R&D investment:

Establish common criteria to label GH R&D activities across public funders

B

Bring the best minds together on GH R&D:

Provide incentives for researchers to collaborate across disciplines and institutions

C

Encourage implementation-oriented GH R&D:

Strengthen GH implementation with translational and intervention research

D

Translate GH R&D insights into impactful policies:

Encourage engagement of GH researchers in national and international GH policy forums

E

Strengthen GH R&D networks in Germany:

Equip R&D “catalysts” (i.e. GLOHRA) with sufficient funding to optimally support GH ecosystem



- Define **criteria to label “Global Health” research across public funders** aligned with international standards and implement it in future public budgets and associated grants
- Highlight **federal GH R&D funding as a dedicated budget item** in future BMBF federal budget plans based on criteria
- **Incentivize universities to prioritize GH research incl. creation of additional “joint GH professorships”** (e.g., for Climate Change and Health) to promote interdisciplinary GH education, establish promising career paths and attract international experts
- Institutionalize and expand **research networks** – especially with strong **Global South ownership**
- **Empower universities to strengthen the entrepreneurial ecosystem** supporting the leap from the lab to global implementation
- **Connect health R&D with international development:** Actors (e.g., BMZ, GIZ) to proactively reach out to, engage with and position GH researchers where needed
- **Proactively reach out and second GH researchers** to national committees and international advisory boards
- **Strengthen German strategic representation by policy makers** in multilateral initiatives on GH R&D (e.g., WHO (Hub), CEPI)
- Establish **regular GH exchanges** co-hosted by BMG, BMBF & BMZ on both state secretary and working levels
- **Enable catalysts to successfully enhance GH R&D collaboration** by providing adequate funding in line with ambitious goals

Key recommendations relate directly to the GH Strategy

Global Health Strategy



Published in October 2020

3 Chapters:

- I. Establishing strategic priorities
- II. Tackling challenges together
- III. Ensuring coherent action

5 strategic priorities

- | | |
|--|--|
| <ol style="list-style-type: none"> 1 Health promotion & disease prevention 2 Environment, climate & health 3 Health systems strengthening | <ol style="list-style-type: none"> 4 Health protection 5 Research & innovation |
|--|--|

Chapters of the Global Health Strategy

I. Strategic priorities

esp. research & innovation



Define **criteria to label “Global Health”** research across public funders



Incentivize universities to prioritize GH research



Enable catalysts to successfully enhance GH R&D collaboration



Empower universities to strengthen the entrepreneurial ecosystem



II. Tackling challenges together

international cooperation



Institutionalize and expand research networks – especially with strong Global South ownership



Proactively reach out and second **GH researchers to national committees and international advisory boards**



Strengthen **German strategic representation** by policy makers in multilateral GH initiatives

III. Ensuring coherent action

national coordination



Establish regular GH exchanges co-hosted by BMG, BMBF & BMZ on both state secretary and working levels



Connect health R&D with international development

→ For a mapping of GLOHRA members working on specific topics mentioned in the Strategy, refer to case studies in annex



Agenda

Study scope and methodology

Background: Germany's role in global health

Study findings

Key recommendations

Annex



Limitations and outlook

Limitations & outlook on selected issues

	Study approach	Limitations	Outlook
Stakeholder engagement	<ul style="list-style-type: none"> ✓ Interviews and survey representing German GH researchers of GLOHRA network coming from a broad range of disciplines 	<ul style="list-style-type: none"> ✗ Limited private sector perspectives from companies and start-ups ✗ Limited international perspectives from researchers based outside of Germany 	<ul style="list-style-type: none"> • Follow-up studies could focus on (i) private sector GH innovation or (ii) international perspectives on GH collaboration formats with Germany
German GH R&D topical expertise	<ul style="list-style-type: none"> ✓ Case studies showcasing interdisciplinary composition of researchers and approach for 4 key topics from Federal GH strategy 	<ul style="list-style-type: none"> ✗ No in-depth review of (i) publications and citations per topic or (ii) detailed funding breakdown 	<ul style="list-style-type: none"> • In-depth reviews on German expertise for selected topics e.g., climate-health could be conducted to inform challenge-based funding calls
Systemic/ societal issues around GH	<ul style="list-style-type: none"> ✓ Issues in academic system covered in collaboration chapter e.g., disparities between biomedical and social sciences 	<ul style="list-style-type: none"> ✗ No in-depth assessment of international systemic challenges, e.g., debate around “de-colonizing GH” 	<ul style="list-style-type: none"> • Addressing international systemic challenges important when developing formats for international research collaboration



Summary of survey results



Member Survey: Summary of Results

GLOHRA Member Survey



Survey sent to all GLOHRA members in January 2022 (ca. 720 individuals)

103 total participants | male = 50, female = 49, other options = 4

At **all career stages** | active in research for 0-5 yrs (n = 23), 6-10 yrs (24) 11-20 yrs (29), 20+ yrs (27)

Employed at **research institution** | active at a university (n = 82), non-university research institute (15) or other (6)

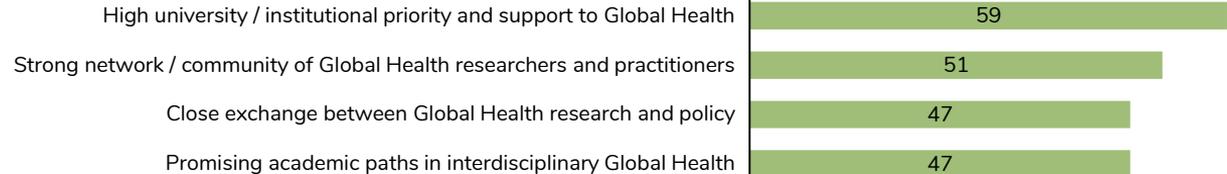
From **all research areas** | identify most with biomedical sciences (n = 24), public health (44), social sciences and humanities (23) and engineering and other sciences (12)

*indicates the number of respondents who selected this answer option in the survey. Respondents could select multiple options.

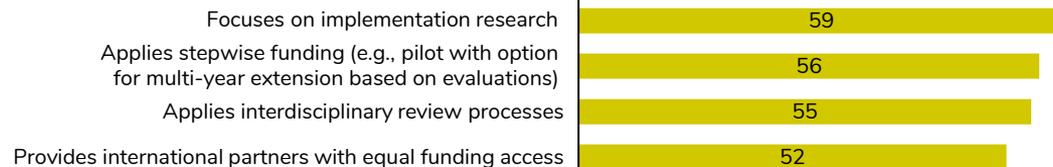
Top four barriers for interdisciplinary research in Germany*



Top four characteristics of an ideal environment for interdisciplinary GH research



Top four characteristics of an ideal funding program for interdisciplinary GH research





Topic case studies

(AMR, cancer, *climate & health and vaccines*)



Study maps status quo of GH research topics highlighted in Germany's GH Strategy

Federal GH strategy largely emphasises cross-cutting R&D topics

Status quo of GLOHRA's engagement in selected GH strategy research topics: 170 researchers engaged, spread across >20 research disciplines

One health

Antimicrobial resistance

NTDs¹

Climate change & health

Zoonotic diseases

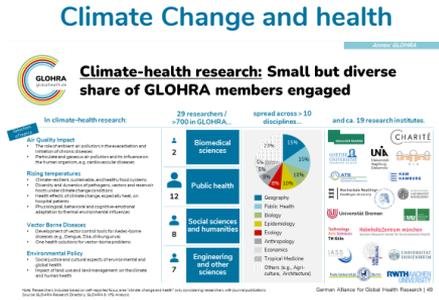
Health systems & UHC

Vaccine development & equity

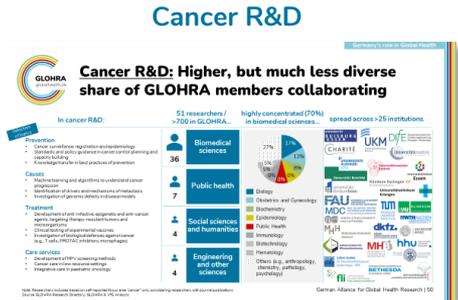
Responsibility – Innovating
 Shaping Global Health Together
 Cancer



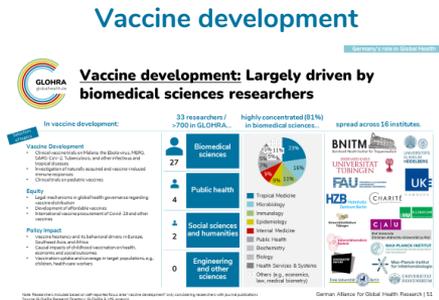
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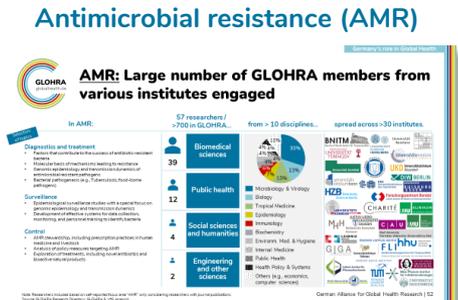
51



33



57



1. German R&D assessment on NTDs published by BNI in 2018: [BNITM_NTD_Expertise_en.pdf](#).



Climate-health research: Small but diverse share of GLOHRA members engaged

In climate-health research:

29 researchers /
>700 in GLOHRA...

spread across > 10
disciplines...

and ca. 19 research institutes.

Selection
of topics

Air Quality Impact

- The role of ambient air pollution in the exacerbation and initiation of chronic diseases
- Particulate and gaseous air pollution and its influence on the human organism, e.g., cardiovascular diseases

Rising Temperatures

- Climate-resilient, sustainable, and healthy food systems
- Diversity and dynamics of pathogens, vectors and reservoir hosts under climate change conditions
- Health effects of climate change, especially heat, on hospital patients
- Physiological, behavioral and cognitive-emotional adaptation to thermal environmental influences

Vector Borne Diseases

- Development of vector control tools for Aedes-borne diseases (e.g., Dengue, Zika, chikungunya)
- One health solutions for vector-borne problems

Environmental Policy

- Social justice and cultural aspects of environmental and global health
- Impact of land use and land management on the climate and human health



2

Biomedical
sciences



12

Public health



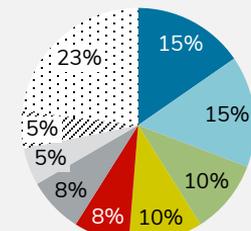
8

Social sciences
and humanities



7

Engineering
and other
sciences





Vaccine development: Largely driven by biomedical sciences researchers

In vaccine development:

33 researchers /
>700 in GLOHRA...

highly concentrated (81%)
in biomedical sciences...

spread across 16 institutes.

Selection
of topics

Vaccine Development

- Clinical vaccine trials on Malaria, the Ebola virus, MERS, SARS-CoV-2, Tuberculosis, and other infectious and tropical diseases
- Investigation of naturally acquired and vaccine-induced immune responses
- Clinical trials on pediatric vaccines

Equity

- Legal mechanisms in global health governance regarding vaccine distribution
- Development of affordable vaccines
- International vaccine procurement of Covid-19 and other vaccines

Policy Impact

- Vaccine hesitancy and its behavioral drivers in Europe, Southeast Asia, and Africa
- Causal impacts of childhood vaccination on health, economic and social outcomes
- Vaccination uptake and coverage in target populations, e.g., children, health care workers



27

Biomedical
sciences



4

Public health

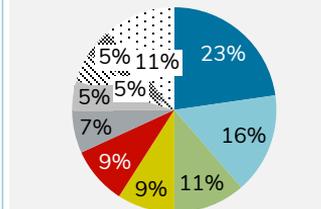


2

Social sciences
and humanities

0

Engineering
and other
sciences



- Tropical Medicine
- Microbiology
- Immunology
- Epidemiology
- Internal Medicine
- Public Health
- Biochemistry
- Biology
- Health Services & Systems
- Others (e.g., economics, law, medical biometry)





AMR: Large number of GLOHRA members from various institutes engaged

In AMR:

57 researchers / >700 in GLOHRA...

from > 10 disciplines...

spread across >30 institutes.

Selection of topics

Diagnosics and treatment

- Factors that contribute to the success of antibiotic-resistant bacteria
- Molecular basis of mechanisms leading to resistance
- Genomic epidemiology and transmission dynamics of antimicrobial resistant pathogens
- Bacterial pathogenesis (e.g., tuberculosis, food-borne pathogens)

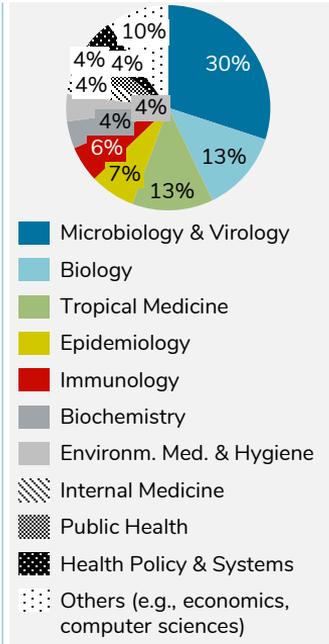
Surveillance

- Epidemiological surveillance studies with a special focus on genomic epidemiology and transmission dynamics
- Development of effective systems for data collection, monitoring, and personnel training to identify bacteria

Control

- AMR stewardship, including prescription practices in human medicine and livestock
- Analysis of policy measures targeting AMR
- Exploration of treatments, including novel antibiotics and bioactive natural products

	39	Biomedical sciences
	12	Public health
	4	Social sciences and humanities
	2	Engineering and other sciences



Note: Researchers included based on self-reported focus area "AMR" only considering researchers with journal publications. Sources: GLOHRA Research Directory; GLOHRA & VfG analysis.



Institutional case studies

*(London School of Hygiene and Tropical Medicine,
Karolinska Institutet)*

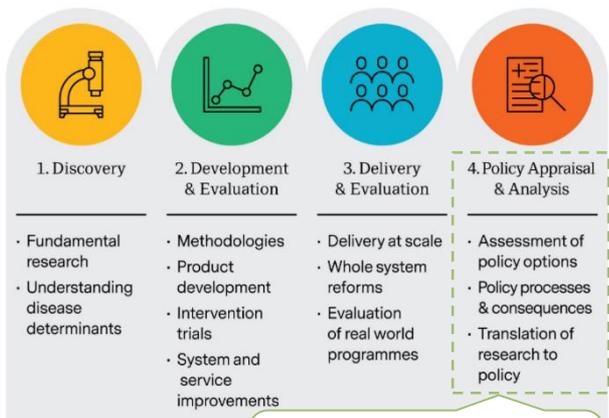


LSHTM embeds policy training in curricula resulting in strong GH research-policy links

LSHTM's research strategy incorporates "Policy Appraisal & Analysis"

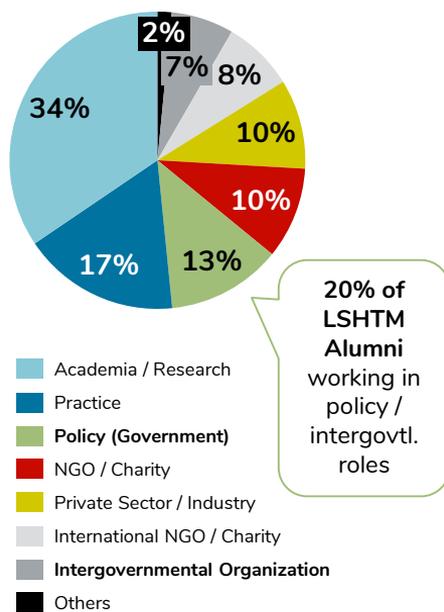


"Scope of Expertise"



LSHTM has embedded research-policy links in core "scope of expertise"

Employment sector of LSHTM alumni (2021)



Selected alumni profiles in key governmental roles (2021)



Prof. Dr. Chris Whitty
Chief Medical Officer for England



Pamela Rendi-Wagner
Chairwoman SPÖ, Austria



Anders Tegnell
State epidemiologist of Sweden



Tedros Adhanom
Director-General of WHO, formerly Health Minister, Ethiopia



LSHTM engaged in various political bodies and initiatives



Political body
Role of LSHTM

Examples of engagement

Parliamentary (subject) group

All-party parliamentary group on GH (APPG)
Run by members of the Commons and the Lords

Research lead and developer

Policy advice reports published by APPG, e.g., "UK's contribution to health globally", 2015 (updated 2020)

Outlining strengths, challenges and opportunities in UK's "leading role in health globally"

APPG funded by foundations and academia

Government agencies and other public bodies

UK Health Security Agency
Gov. agency to protect public health

Co-Lead of UK Public Health Rapid Support Team (UK-PHRST)

Joint initiative for disease control, integrating outbreak response, research and capacity building in LMICs

UK Public Health Rapid Support Team (UK-PHRST)

~£ 4m yearly budget funded by UK Official Development Assistance (ODA)

Scientific Advisory Group for Emergencies (SAGE)

Infectious disease modelling & participants of SAGE

Advise to government during emergencies, e.g., COVID-19 response: Autumn and Winter scenarios '21-'22

Autumn-winter scenarios 2021-2022
Rosanna C. Barnard, Nicholas G. Davies, Mark Jit & W. John Edmunds
London School of Hygiene & Tropical Medicine
13th October 2021

In this report we model potential dynamics of SARS-CoV-2 transmission in England from October 2021 until September 2022. We model COVID-19 booster doses, waning vaccine protection and vaccination of 12-15 year old children, as well as incorporating uncertainty via future behavioural changes.

3 LSHTM Professors are SAGE members

Government Office for Science

Sources: APPG, UK-PHRST, SAGE.

Multidisciplinary research and equity of health systems at core of KI's mission

Karolinska Institutet - Facts & Figures

- **Karolinska Institutet (KI)** is Sweden's single largest center of medical academic **research and post-graduate education** in **public and Global Health**
- **Mission:** strive to contribute to knowledge generation and sharing through **multidisciplinary research, education and policy dialogue** for improved coverage, quality, and **equity of health systems**

KI has a leading position in global health research



#7

University ranking on ARWU (2021)



>70

Global partnerships within Health systems and Policy research



>7,000

Publications in the field of Global Public Health

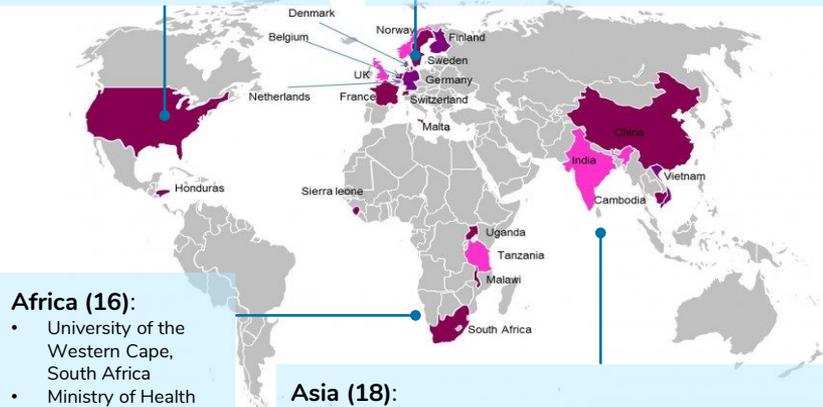
Strong interdisciplinary and global collaborations

America (4):

- University of San Francisco
- Duke University, North Carolina
- ...

Europe (28):

- London School of Hygiene & Tropical Medicine, UK
- National Food Agency, Sweden
- ...



Africa (16):

- University of the Western Cape, South Africa
- Ministry of Health and sanitation, Sierra Leone
- ...

Asia (18):

- German Technical Cooperation (GIZ), Cambodia
- China Center Health Development Studies, Peking University
- ...



PhD program with Uganda best-practice for institutional capacity building



Karolinska Institutet & Makerere University Partnership

- Collaboration between Karolinska Institutet (Sweden) and Makerere University (Uganda) initiated in 2000, 1st agreement signed 2003
- Funding secured by Swedish International Development Agency (SIDA)



Joint Doctoral Degrees

- 4-year program leading to Swedish-Ugandan Double Degree (PhD)
- Double registration, joint supervision and examination
- Eye-to-eye partnership sponsored by Sweden with Makerere University in the lead for many processes e.g., selecting local candidates
- Reduction of complexity for Ugandan partner by not imposing Swedish processes & templates



Impact of joint doctoral degree

Key highlights from 2002-2013:

10	44	13	88%	>500
Years of SIDA funding	Graduated PhD students	Embarked to postdoc training	Of students are Ugandan	Peer-reviewed articles

- Research focus on Ugandan health (system) priorities
- Local capacity building as graduates stay in Uganda after completing their PhDs
- In 2021, launched joint Center of Excellence for Sustainable Health (CESH)

Capacity building



Institutional level



Network level



Global Health research institutions and structures in Germany



Many health researchers active in GH, however, not marked as public GH funding

Deep dives on next slides

> 50 universities with researchers working on GH¹



Example topic: population health in Africa and Asia

4 leading non-university research institutions with each dedicated budget for health research

Example topic: new care concept in response to global challenges (e.g., fast spread of resistance genes through globalization)



Example topic: viruses as cause of cancer (~10% globally)

DZG: 6 centers to support translational research across institutions

Example topics: tuberculosis, malaria and HIV





Fraunhofer Society: largest European Institution for Applied Sciences



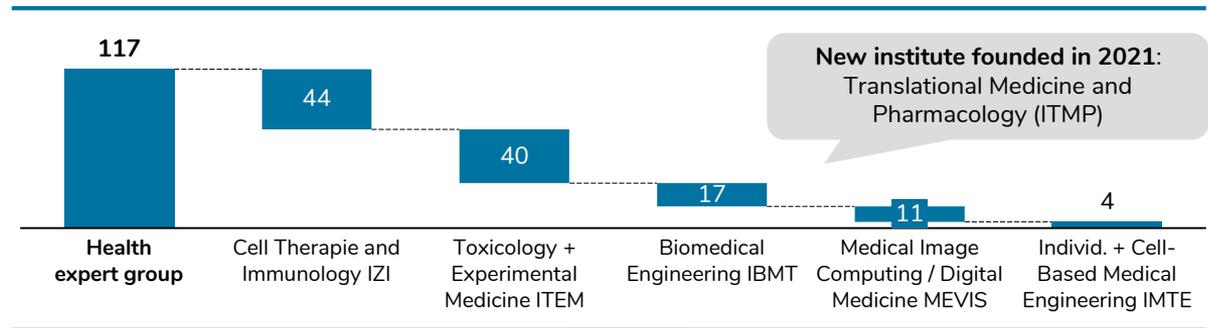
Organizational Profile

- Largest European Institution for **Applied Sciences** (founded in 1949)
- ~**29,000** employees in 2020
- DE: **75 institutes** and research facilities
- Research budget: **€2.6bn** in 2020:
 - Contract research¹: €2.4bn (92%)
 - Additional research: €0.2bn (8%)

7 strategic research fields

- | | |
|---------------------------|--|
| 1 Artificial Intelligence | 5 Next Generation Computing |
| 2 Bioeconomy | 6 Quantum Technologies |
| 3 Digital Healthcare | 7 Resource Efficiency and Climate Technologies |
| 4 Hydrogen Technologies | |

Research budget of key health institutes (2020, €m)²



Selected health R&D projects with Fraunhofer participation:

FluoResYst (IZI)

Rapid detection system for multidrug resistance in tuberculosis infections



Spin-Off "Phialogics" (ITMP)

Innovative biologics for the treatment of autoimmune diseases



iGUARD (ITEM)

Development for RNA-based anti-viral drugs

SPRIN-D

1. Contracted by industry, publicly funded and base funding (~1/3 each).
Sources: Fraunhofer annual report 2020, Fraunhofer website.



Helmholtz Society unites scientists researching the interface of brain and cognition

HELMHOLTZ
SPITZENFORSCHUNG FÜR
GROSSE HERAUSFORDERUNGEN

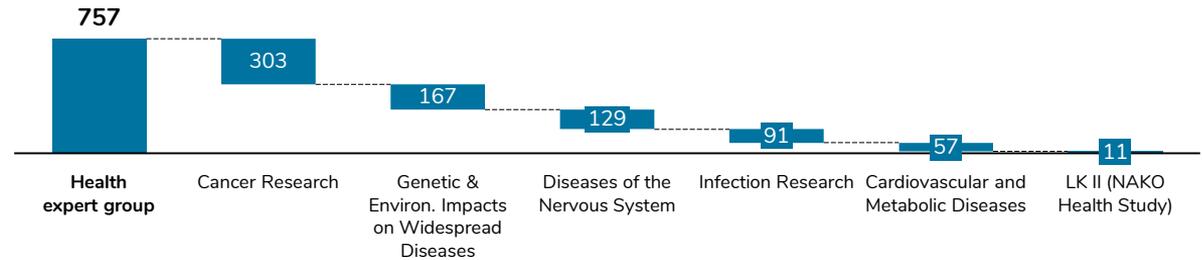
Organizational Profile

-  Founded in 1960 in Bonn
-  ~**43,700** employees (2021)
-  DE: **19** research centers in 2021
-  Research budget: **€5.4bn** in 2021:
 - Institutional funding: €3.1bn (57%) (federal: €2.8bn, state: €0.3bn)
 - Third-party funding: €1.6bn (30%)
 - Special financing: €0.7bn (13%)

6 strategic research fields

- | | |
|----------------------|--|
| 1 Information | 4 Earth and Environment |
| 2 Matter | 5 Aeronautics, Space and Transportation |
| 3 Energy | 6 Health |

Research budget of key health institutes (2021, €m)²



Selected health R&D projects with Helmholtz participation:

Helmholtz Drug Research Initiative (HZI/HIPS)

Coordinating center for the joint drug discovery and development initiative of the six Helmholtz health centres¹

NAKO Health Study

Germany's largest cohort study involving 200,000 people that are medically examined about life circumstances and medical history

Epigenetic fixation of immune cell fates (HZI)

Contribution of epigenetic mechanisms to immune cell development, differentiation and function



Leibniz Society unifies non-university research institutes and research service facilities

Organizational Profile



Founded in 1990



~20,700 employees (2020)



DE: >97 research institutions in 2020



Research budget: **€2.02bn** in 2020:

- Institutional funding: €1.28bn (64%)
- Third party funding: €521m (26%)
- Other revenue streams: €220m (10%)

5 strategic research fields

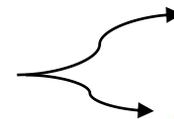
- 1 Cultural tradition and education
- 2 Economic & spatial development, democratic participation & social integration
- 3 Biodiversity and Health
- 4 Light, Matter, Information
- 5 Environment and Sustainable Dev.

Biodiversity and Health (Life Sciences): research budgets of selected institutes (2020)



Overall, 25 Leibniz institutes part of Life Sciences

Examples:



BNITM
Bernhard-Nocht-Institut für Tropenmedizin

€35m

Forschungszentrum Borstel
Leibniz Lungenzentrum

€31m

Selected health R&D projects with Leibniz participation:

AgingComb

Investigation of genome aging using high-throughput analysis of DNA replication and recombination



DUSTRISK

Investigation of harmful aspects of mineral dusts in combination with adherent microbes, which can cause respiratory diseases such as asthma, rhinitis, or pneumonia



Research alliance: "Infections in an Urbanizing World"

Development of new strategies for early warning systems, better management of outbreaks and containment of pathogen spread





Max-Planck-society operates as Germany's most successful organization in basic research



Organizational Profile

-  Germany's most successful **basic research** organization (founded in 1948)
-  ~**24,000** employees
-  DE: > **80** research institutions
-  Research budget: **€2.2bn** in 2020:
 - Institutional funding: €1.9bn (86%)
 - Subsidies from project funds: €303m (14%)

5 strategic research fields

- 1 Physics and Astrophysics
- 2 Biology and Medicine
- 3 Material and Technology
- 4 Environment and Climate
- 5 Culture and Society

Biology & Medicine: research budget of selected institute (2020)



© Max Planck Society

Example:

Overall, 47 MPI part of research field "Biology & Medicine"



max planck institute of neurobiology



€21m

Selected health R&D projects with Max-Planck participation:

Snifits4Health

Development of a portable measuring device for fast quantification of metabolite concentrations in the blood



Frankfurt Has Brain (FHB)

Joint project of Frankfurt's neuroscience institutes for Brain Awareness Week to raise public awareness of the progress and benefits of brain research



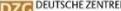
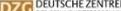


DZG: One of BMBF's leading initiatives to promote translational research

German Centers for Health Research (DZG)

- **Six German Centers for Health Research (DZG)** established between 2009 and 2012 on the initiative of the German government
- **Goal:** Create a new basis for top-level translational biomedical research that is visible and competitive in the int. environment
- **Approach:** Close cooperation – pooling the capacities and qualities of German health research

Funding & linkages

 German Center for Neurodegenerative Diseases within the Helmholtz Association	2018: €104m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG 
 Deutsches Konsortium für Translationale Krebsforschung	2020: €28.2m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG  HELMHOLTZ ASSOCIATION
 Deutsches Zentrum für Lungenforschung	2020: €27.1m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG 
 German Center for Infection Research	2020: €37.1m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG
 DEUTSCHES ZENTRUM FÜR HERZ-KREISLAUF-FORSCHUNG E.V.	2020: €46.9m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG
 German Center for Diabetes Research	2020: €31.8m	 DEUTSCHE ZENTREN DER GESUNDHEITSFORSCHUNG



German Alliance for
Global Health Research



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twitter.com/globalhealth_de