



Die
Bundeskanzlerin

*Internationales
Deutschlandforum*

Third International German Forum What matters to people – global health and innovation

3. Internationales Deutschlandforum

Was Menschen wichtig ist – Globale Gesundheit und Innovation



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The International German Forum

“Politics must address the things that matter to people.”

FEDERAL CHANCELLOR DR ANGELA MERKEL

With the International German Forum, the Federal Chancellor has created a format for international exchange on globally relevant future related issues in 2013. In many countries, societies are facing complex social, economic and ecological challenges, such as demographic change, the digital revolution and climate change. German and international experts from different fields, sectors and hierarchical levels representing the political, administrative, business and scientific communities as well as civil society meet in the context of the International German Forum. They discuss

approaches towards and ideas about these issues, exchange experiences and find possible courses of action. The Forum is a platform for discussing and spreading innovative approaches. The aim is to learn from each other through interdisciplinary and intercultural dialogue.

The idea for the Forum arose from the Federal Chancellor’s dialogue on Germany’s future conducted in 2011 and 2012, in which she discussed the question “*How do we want to live together in the future?*” with citizens and experts.

A look back: the first and second International German Forum

The first International German Forum was held at the Federal Chancellery on 5 June 2013, under the heading of **What matters to people – wellbeing and progress**. The first forum addressed the question of how the wellbeing of today’s and future generations around the world can be maintained and improved. It centered around such questions as what the public, academia and business world understand by wellbeing and how the endeavour to improve it can be made even more of a focus for political action. The Federal Chancellor also discussed some of the Forum’s issues in the context of the G8. The conclusions of the Forum were used to help draw up a report on wellbeing in Germany that was adopted by the Federal Government in October 2016.¹

The second International German Forum followed on 19 and 20 January 2015, at the Federal Chancellery, this time under the heading **What matters to people – innovation and society**. The key question of the second Forum addressed the prerequisites for wellbeing: „How do our societies generate innovations that improve wellbeing in a time of complex challenges and digital opportunities?“ Participants discussed how the ability to innovate was a key determiner in developing solutions to global challenges. The starting point for the dialogue was a broad interpretation of innovation, encompassing social and systemic change as well as technological and economic advances.²

¹ The report is available in German and in English at: <https://www.gut-leben-in-deutschland.de/static/LB/en>.

² A report on the second International German Forum, in German and English, as well as videos of parts of the conference are available at: <https://www.bundesregierung.de/Content/EN/StatischeSeiten/breg/IDF/2016-12-29-2-idf.html?nn=2104642>.

The third International German Forum



Federal Chancellor Dr Angela Merkel with the participants of the third International German Forum

Background

On 21 and 22 February 2017, the Federal Chancellor hosted the third International German Forum on the topic of **What matters to people – global health and innovation**. As with the previous fora, the overarching theme of the International German Forum was improving wellbeing. Some 120 experts from 25 countries discussed challenges and possible approaches to improving global health.

Good health is the basis for a fulfilled and happy life, and this makes it the prerequisite for a high quality of life. This is true for all people around the world. With the 2030 Agenda, the international community has committed itself to the promotion of health. Germany is actively engaged in these efforts, which include for example strengthening health care systems and reforming global health care architecture. Furthermore, Germany contributes emergency funding, as well as medical personnel and material, to address severe health crises. Thanks to a joint initiative of Germany, Norway and Ghana, a high-level UN panel has issued recommendations to prevent and manage future health crises. Germany has addressed other priorities as well, such as the fight against

antimicrobial resistance and against neglected tropical diseases, during its G7 presidency in 2015. Germany will continue working towards the promotion of health during its G20 presidency in 2017.

The International German Forum supplements these efforts. Many countries are faced with similar tasks when it comes to improving the health of their citizens and at the same time, many challenges can only be tackled jointly. Discussing new developments, solutions and cooperation initiatives at the international level helps achieve results and make a difference in both national and global issues. The International German Forum seeks to contribute to the development of joint solutions through interdisciplinary, intersectoral and international dialogue.

Further information on the topic, programme and participants, as well as video excerpts of the first, second and third International German Forum are available on the homepage of the German Government.³

³ https://www.bundesregierung.de/Webs/Breg/EN/Issues/Internationales-Deutschlandforum/_node.html.

“At the International German Forum, we want to discuss global challenges that require complex answers and develop solutions to them.”

MINISTER OF STATE PROF HELGE BRAUN



Minister of State Prof Helge Braun opens the third International German Forum at the Federal Chancellery.

Welcome

“The international and diverse nature of our meeting here at the Federal Chancellery today is something special, even for us”, said Prof Helge Braun, Minister of State to the Federal Chancellor, at the opening of the third International German Forum. The forum was a place for experts from all over the world to discuss future global issues away from the daily business of politics. In an increasingly complex world, according to Braun, societies were facing if not identical then very similar challenges, which could often only be solved together. Sectoral divides had to be overcome in order to find new and effective responses. *“Experts cannot only always speak to colleagues from the same field, we need to have interdisciplinary cooperation”,* said Braun.

This was the case also for a topic such as health, he continued, noting its role as the foundation for economic development and education, whose fundamental importance had been highlighted in the 2030 Agenda. Braun recalled the 2014/2015 Ebola crisis, in which 11,000 people lost their lives. Strengthening global health systems so that such crises can be dealt with – or even better, avoided –

formed the core of a successful international health policy. For instance, the German Government had formulated a six-point plan to deal with health crises more swiftly and effectively. *“When we talk about global health, there are few things that can be achieved with short-term measures”,* said Braun. This was true for research, which should not be carried out *“seasonally”*. The international research community should be organised in a complementary manner that enables it to overcome the main health challenges of our time.

Braun highlighted the international dimension of health, for example in the area of antibiotic resistance, and highlighted proper use and prescription-only access as particular challenges. Public discussion of mental health issues was another pending task for the global community to address, he said, adding that a further exciting question was how the digital revolution could be used to improve healthcare provision around the world.

The third International German Forum sought to come up with *“good ideas and practical answers”* to such questions so that more people could access education and provide for themselves and their families, so that the planet *“becomes healthier”*.

“Taking policy innovation to the next level”

by Christian Bason

Federal Chancellor Angela Merkel’s International German Forum: A model for global problem-solving?

During the past four years, Germany’s Federal Chancellor Angela Merkel has curated a remarkable initiative. Labelled the International German Forum, she has personally hosted a group of around 120 experts and professionals from around the globe to inform her and her government of how to address complex societal problems. The Forum’s approach and format could serve as a model for more ambitious, collaborative and effective policy innovation at a global scale.

Imagine this: A world leader ambitious enough to define difficult policy issues to shape a global agenda. A leader humble enough to ask for new insights from around the planet through a co-creation process. And a leader open enough to share the learnings and results with the public, real-time.

In Berlin this February, this scenario was not imagination but something very real. Germany’s Federal Chancellor Angela Merkel personally hosted the third bi-annual edition of the International German Forum, essentially a 2-day workshop using a participatory approach to addressing a complex policy challenge. This year, the challenge was defined as a number of urgent global health issues, ranging from the fight against neglected tropical diseases to optimizing the use of antibiotics, overcoming the taboo of mental health to the risks and opportunities of digital transformation of healthcare. Taking the input from the Forum, the German government intended to bring the best ideas to shape the global health agenda, amongst others through its leadership of the 2017 summit of the G20.

A collaborative approach to rethinking public challenges

Many national and international bodies, including public institutions, universities and businesses work on such issues; however rarely are the foremost experts all assembled in the same room at the same time; and even more rarely are they professionally supported to collaborate and co-create solutions together. Finally, it is extremely rare that the kinds of insights and ideas emerging from such work is presented directly and unfiltered to a world leader with the capacity and means to bring them into action.

A simple, yet not so simple formula

The formula guiding the International German Forum is in a sense very simple. It consists of four key ingredients:

First, identify a complex policy challenge that is important for the host (Germany) but which is also an emerging global problem. The International German Forum has explored how to measure and foster more wellbeing; how to power innovation in business and society, and how to address the most severe global healthcare issues.

Second, invite the foremost experts in the field, mix disciplines, sectors and hierarchies with a substantial participation from the host nation, but with at least 50 percent international participants from all continents, drawn from across international institutions, governments, universities and the private sector.

Third, create a sharply curated format which ensures clear framing of the problems, systematic sharing of knowledge and evidence, and enough time allocated (around three hours) for actual collaborative brainstorming and design of new solutions across groups of experts. For instance, in the latest 2017 edition the methods deployed included foresight and vision techniques, design thinking, and behavioural insight.

Fourth, provide an urgent demand for the work by concluding with a personal conversation between the participants and the host. At the International German Forum, the session with Ms. Merkel lasts around 90 minutes and is livestreamed online and covered by national and international media.

The fifth ingredient

While this formula might appear simple, there is a fifth ingredient which cannot be underestimated, and which is ultimately what makes the International German Forum unique: The clear feeling among all participants that this is not an event done for show or for publicity. It is an event done with the intention of truly gathering new insight, and with the desire on behalf of the Chancellor to be challenged, surprised, and inspired. Having observed two of these sessions up close, there is a remarkable focus and energy in the room as experts pitch their ideas to a world leader, and as

this leader asks intelligent and nuanced questions. One gets the sense that she is honestly interested in the answers.

If only more political leaders displayed this mix of ambition and humility; and if only more global forums like this one were created – more often – to deal with the urgent and complex issues of our time. Chancellor Merkel has set the standard, and created the recipe. It is hereby yours for the taking.

Christian Bason is CEO of the *Danish Design Centre*, a publicly funded organisation in Denmark bringing innovation to business and government by fostering strategic use of design. Christian is also the former Director of the Danish government's innovation unit *MindLab*, the author of six books on innovation, leadership and design, and a Ph.D. fellow with *Copenhagen Business School*.



Christian Bason, CEO of the Danish Design Centre, during a plenary discussion



At the opening discussion, speakers from India, the United Arab Emirates, Tanzania, South Africa, Canada and the United States presented their views and experiences on topics such as telemedicine and the potential for raising awareness about health issues offered by mass media.

Opening Discussion

In preparation for the third International German Forum, dialogue events took place in several German missions abroad. They highlighted different elements of the topic of health from a national perspective and asked: what can other countries learn from this? And: what experiences could be translated into other contexts? Participants of these events from India, Canada, South Africa, Tanzania, the United States and the United Arab Emirates presented their conclusions at the International German Forum.

India

Mirai Chatterjee is director of the social security team for *Self-Employed Women's Association (SEWA)*, a trade union that represents 1.9 million female Indian workers active in the informal sector. She has been a driving force in improving the health and financial security of women in India for over 30 years.

Promoting health in India: Critical Success Factors by Mirai Chatterjee



Mirai Chatterjee

The key learning for promoting health in India is that people must be in the centre of all efforts. Further, health promotion must be by, for and with people, especially the poorest, like women workers of the informal economy. It is a decentralised, local and 'door-step' approach that is most effective in promoting people's health. The critical success factors are:

1. Organising women workers into their own union and cooperatives, including a worker-run and owned health cooperative. The latter focuses on health promotion, education and awareness, including on Non-Communicable Diseases (NCDs), occupational health, nutrition, overall women's health and infectious diseases, among others.

Informal women workers and young people are both health promoters and also the focus of all efforts to improve health literacy. We have also learned that health is a key entry point for organising the poor and building their solidarity not only for improving their own health, but also other aspects of their lives.

2. Integrating health promotion into primary health care, and ensuring that all efforts are led by local health promoters-cum-health workers, preferably women, results in effective, low cost and appropriate health education and promotion. Local people respond best to others like themselves, and especially women, who understand their milieu and live through the same conditions and experience the same reality. Further, health promotion requires patience and persistence, often repeated home visits, door-to-door, to explain with care about health action and education. Low cost and rational medicines, including traditional ones, must be a part of health promotion at the grassroots level. Not only is this a felt need, but it enhances the credibility of local health promoters, as they can service the need effectively.
3. Building partnerships between people, the public health system, private providers, medical associations and medical colleges significantly strengthen and support local health promotion, and enhance local health promoters' knowledge, skills and linkages for deepening health promotion at people's door-steps.
4. Organising diagnostic camps for early detection, screening and health promotion, at the grass-root level serve to inform and create awareness on health conditions and wellness. These are conducted in partnership with public and private providers, building valuable linkages and partnerships. These help to enable referral care

for local people when they most need it, as they are already familiar with the health providers and facilities.

5. Developing referral services for local people to their nearest secondary and tertiary care facilities is an important pillar of support in times of critical illness. However, it requires hand-holding and facilitation by the local health promoters-cum-health workers to navigate systems and procedures that are not always easy to comprehend.
6. Putting technology like mobile phones and hand-held tablets in the hands of local women health workers helps to strengthen their work and credibility at the local level. With such technology they can send health promotion messages, undertake diagnostic tests for diabetes and show short health education and awareness film clips. Tablets also help to send and store authentic health data collected at local level.
7. Acting on and for social determinants of health like early childhood care, water and sanitation and food security, among others is essential. This can be done by organising local people into groups and committees to develop programmes and services, or by linking them with government and others to reach services and entitlements to people at the grassroots level. Local health promoters link effectively with other development workers, like child care workers or agriculture extension officers, to work jointly on the social determinants of health. Such integrated and concerted action is required for health promotion.
8. Developing 'health hubs' to provide information on health and other developmental programmes is an effective way to promote health. These serve as empowerment and service centres, and are managed by local health promoters themselves. These health hubs not only provide information, but also facilitate obtaining of entitlements and services through hand-holding, create linkages with service providers and actually help local people to navigate both public and private health facilities for care and services.

Canada

Dr Lynn Nagle is founding president of the *Canadian Nursing Informatics Association* and an expert in telemedicine. She works with different health organisations on the strategic planning, introduction and evaluation of health information systems.

Telemedicine in Canada: Impact, Success Factors and Key Learnings by Dr Lynn Nagle



Dr Lynn Nagle

Canadian Healthcare Landscape

Providing care to 33 million citizens, Canada's current healthcare spending is approximately \$228 Billion per annum, 11.1% GDP and approximately \$6,299/pp. (CIHI, 2016). Canadian healthcare is 70% publically funded with approximately 30% funded privately. Similar to many other developed countries there is a large concentration of specialists in and around major urban centres. Canada's vast geography makes it difficult and costly for some patients and clinicians to connect face-to-face, especially for those living in rural and northern regions of the country. There are many isolated aboriginal communities in the far north, some of which are particularly difficult to access in the winter months. Many Canadians must travel long distances to access specialized health care services.

Telemedicine is typically used to denote the provision of remote diagnostic and follow-up consultations and patient monitoring, the delivery of distance education to health professionals and patients and families, as well as the conduct of administrative events such as regional meetings; it uses a growing variety of technologies from the simple telephone to more advanced tools including combinations of video, store and forward, web portals, smart phones, diagnostic peripherals.

The most common clinical events are focused in the areas of: Mental Health (Psychiatry-Psychology), Neurology, Oncology, Pediatrics, and Rehabilitation (e.g., Occupational Therapy, Physiotherapy, Speech Language Pathology). Remote patient monitoring supports the management of individuals with chronic diseases (e.g., COPD, CHF, diabetes) using home-based peripherals (e.g., digital weigh scales, pulse oximetry) to transmit data to clinicians.

Impact of Telemedicine

Between 2010 and 2014, the aggregate growth of telemedicine clinical events across Canada was 120% (*Canada Health Infoway*, 2016). While the primary benefits are being realized by remote and rural communities, where many specialty services are not accessible, urban centers are also realizing the benefits. Overall, telemedicine is improving access, timeliness, productivity, quality, and convenience in care delivery. In addition to reducing travel costs for providers and patients, governments are realizing significant cost-savings in northern travel grants and there is also a marked environmental benefit with the reduction in carbon remissions.

Based upon telemedicine utilization in 2015:

- Patients saved approximately \$230 million in personal travel costs;
- Cost avoidance of \$2.2 million in emergency department visit costs and about \$48 million in inpatient costs;
- \$112 million in savings to provincial and federally subsidized travel programs (*Canada Health Infoway*, 2016).

Assuming a growth rate of 20%-40% per year, 1.2 million consultations could be reached within the next five years and incremental savings will be considerable.

Improvements to the timeliness of care have also been notable. For example:

- the use of store and forward applications of images have reduced wait times for some dermatology programs from seven weeks to 10 days;
- teleophthalmology wait times have been observed to decrease from about 25 days to less than two days;
- doctors at small hospitals can consult with neurologists in urban centers using telestroke technology and administer appropriate therapy within a crucial three-hour window (*Canada Health Infoway*, 2011).

More than 80 per cent of patients have reported satisfaction with remote services and more empowered to manage their care.

Telemedicine has also been used to deliver thousands of education sessions and linked clinicians with different skills and experience, providing opportunities for mentoring and skill development.

Critical Success Factors

Based on the experience of current telemedicine programs, critical success factors include:

- Appropriate clinician reimbursement
- Professional development to adopt and use telemedicine
- Effective technology implementation - change management and adoption
- Workflow integration
- Address implications for licensure and other regulatory issues
- Address governance and policy implications
- Benefits realization and measurement
- Secure funding for implementation and transition to the mainstream (*Canada Health Infoway*, 2016)

Key Learnings for Other Countries

- Funding model should be in place at the outset
- Engage users in technology choice and implementation
- Can be beneficial in both urban and rural settings
- Good network connectivity essential
- Measure benefits (e.g., cost-savings, time to referral, diagnosis & treatment)
- Streamline governance, management, and operations

Overall the primary benefit of Telemedicine continues to be “the elimination of distance barriers along with improved access to services, enhanced provider to provider consultation – moving voice, data, images, and clinical information rather than moving patients and providers” (*COACH*, 2015, p.9). Delivering care closer to individuals in their own communities is “disrupting” the traditional boundaries and processes of health care delivery across Canada.

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United Arab Emirates

Dr Sameera Al Obeidli is medical director at the *Abu Dhabi Telemedicine Centre*. As doctor and surgeon, she is responsible for medical staff on the ground, ensures that high-quality medical care is provided and offers patients medical advice and care over the phone.

Global health and innovation: *Abu Dhabi Telemedicine Centre* by Dr Sameera Al Obeidli



Dr Sameera Al Obeidli

Telemedicine in the United Arab Emirates

Telemedicine has been successfully implemented in the United Arab Emirates (UAE) through *Abu Dhabi Telemedicine Centre's* operations. The Centre, for which I serve as Medical Director, launched operations in October 2014. Since then, our telemedicine-specialized General Practitioners and Registered Nurses have diagnosed a range of more than 2,500 different non-emergency medical conditions, for tens of thousands of patients throughout the country. Patients call our toll-free number, speak with a nurse who triages the patients and creates their medical files, before our physicians call them back within 30 minutes to diagnose their conditions fully over the phone.

The Centre is a joint venture between *Mubadala Development Company (Mubadala)*, an investment and development company owned by the Abu Dhabi government (the capital of the UAE), and the Swiss Centre for Telemedicine – *Medgate*, Switzerland's leading telemedicine provider. *Mubadala* is helping to address the region's most pressing healthcare needs through the creation of specialist, world-class healthcare facilities to build regional capability and stimulate the overall development of the sector. It identified telemedicine as a way to address key challenges the local healthcare sector faced.

Increasing access to healthcare was the key challenge that telemedicine addressed. With 30% of the population residing in rural and remote areas, these were largely underserved communities, facing physical barriers to accessing care for basic healthcare needs.

Another challenge was the unavailability of non-emergency healthcare services outside clinics' regular operating hours. This led to emergency rooms seeing higher numbers of non-emergency patients. A lack of facilities was further compounded by very high outpatient utilization rates, with UAE patients on average visiting physicians 4-14 times per year, as compared to 3-4 times for patients in OECD countries. Remote diagnosis and treatment proved an effective way of providing access to care, while lowering pressure on emergency departments.

Critical success factors

There are three critical success factors in launching a telemedicine service:

Firstly: regulations. Technology is a great enabler of enhancing care modes and efficiencies. Proper regulations that enable remote healthcare and financial reimbursement for it must be enacted. It's also imperative that the health sector regulator has the ability to quickly implement and evolve regulations, since technology puts pressure on regulators to keep up.

Secondly, reimbursement for health insurers. A key component in healthcare is the ability for providers to claim payments for services from insurers. One of the most commonly reported obstacles to launching a telemedicine service worldwide is the lack of regulations or laws enabling insurers to offer reimbursements for telemedicine services. At the Centre, we have together with our health insurance partner, the National Health Insurance Company – *Daman*, proven significant cost savings per teleconsultation at scale when compared to regular consultations at hospitals and clinics. Thus, ensuring reimbursement for telemedicine represents cost savings to the healthcare system, which is particularly relevant to national healthcare systems funded by governments or tax payers.

Thirdly, technology & telemedical expertise. We practice evidence based medicine, which is required by the regulator and expected by the patients. For this reason, we partnered with Switzerland's leading telemedicine company, which operates Europe's largest telemedicine centre, and has over 15 years' experience in practicing telemedicine. Through this partnership we were able to leverage a proven electronic Patient Management System & Electronic Medical Records, which we then tailored to the UAE and our cultural nuances. We also operate according to the Telemedical Guidelines & Standards developed by *Medgate*, and ensure we continuously enhance our service through a monthly Quality Committee that reviews the physicians and nurses performance on medical cases.

Key learnings for other countries

Partnership across key stakeholders is essential to launching a successful telemedicine service.

Where four years ago there were no regulations for practicing telemedicine in the UAE, there is now a fully operational telemedicine center serving patients 24/7, accessible from anywhere in the world. This is due to the joint cooperation, vision and commitment to innovation to benefit the local community by the investor (*Mubadala*), the regulator (*Health Authority – Abu Dhabi*), the telemedicine expert (*Medgate*), and the insurer (*Daman*), in drafting and enacting the regulations, and setting the framework and operating model for a telemedicine offering.

South Africa

Prof Harry Dugmore directs the *Centre for Health Journalism* at *Rhodes University* in Grahamstown. He has been dealing with the influence of the media on awareness of health issues and behaviour for many years and has taken part in numerous awareness-raising campaigns.

Preventive health promotion campaigns - some insights from South Africa by Prof Harry Dugmore



Prof Harry Dugmore

When it comes to health, prevention remains better than cure. Yet few countries devote the necessary creativity or funding to drive effective prevention campaigns. This needs to change, because our societies are changing, and our disease burdens are being shaped increasingly by non-communicable diseases and mental health issues. For example, exercise rates among young people have declined steeply as their 'screen choices' have increased.

With global internet connectivity set to pass the 50% mark this year, there seems to be a strong link between increased online activity and decreased rates of exercise, with only about 20% of children and youth globally meeting minimum recommendations levels for physical activity.

Playing *Fifa 17* and other games on a screen is replacing playing football in the streets for too many boys and girls.

In addition, the marketing budgets and consumption rates of fast-food and sugar-sweetened beverages expand faster than population growth rate in many parts of the world. For the first time, in many countries, there are more children who are overweight and obese, compared to those who are hungry and under-nourished.

In South Africa, and in Sub-Saharan Africa, both eating too much and having too little to eat remain a problem – and both prevent children reaching their full potential. In South Africa, almost 70% of women and 40% of men are either overweight or obese. One in four girls under 14 is overweight or obese, and boys' rates of overweight are climbing.

As a result, obesity-related diseases now account for an estimated 40% of all deaths in South Africa. 7% of the South African population has diabetes. Added to our communicable disease burden, this impacts on mortality and morbidity rates severely. Despite 20 years of programmes to combat the disease, and the largest anti-retroviral distribution programme in the world, we still have approximately 1000 new HIV infections per day in South Africa.

Looking at these numbers, some would conclude that health education prevention programmes and mass media campaigns are failing. This is not entirely the case. In South Africa, long-standing programmes such as Soul City are making a real difference, because of their evidence-based approach, scale and rigour. And more recently, South African health authorities are also supporting campaigns to encourage people to be mindful of their salt consumption and to reduce their intake of sugar sweetened beverages (SSBs).

But these campaigns are often under-resourced. To reduce the consumption of SSBs, South Africa is also implementing a tax on sugar, which has shown to have some impact on consumption of SSBs in, for example, Mexico. The research is clear however: such taxes work far better when they are coupled with substantial public health campaigns.

Social Media on Smart phones is being used to great effect by food and drink companies to boost consumption of their products. We have to ensure our media-led prevention campaigns are equally savvy. We can't match the budgets of large multinational food and drink companies, but we need to find a way to at least provide our citizens with some encouragement to consider healthier alternatives.

To really make an impact, countries should consider establishing independent and properly funded Health Promotion and Development Foundations. Funded directly by a portion of taxes from alcohol and tobacco sales, these foundations could be staffed with a country's best public health thinkers, with budgets that allow them to create public health campaigns with private media agencies that are based on the latest insights from behavioural psychology and economics, and have enough resources to measurably shift behaviours, thereby helping people lead healthier lives.

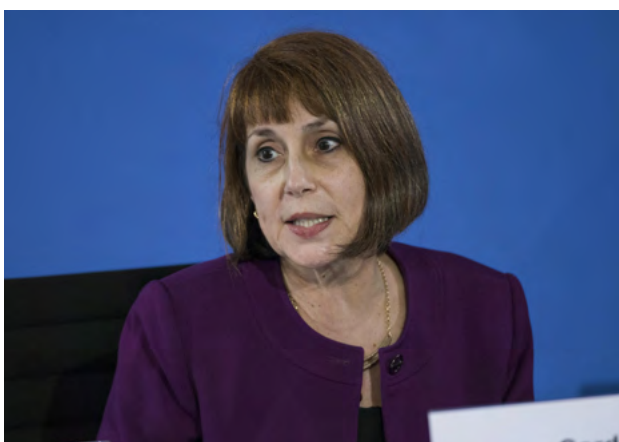
These foundations need to be independent and their funds ring-fenced, because there is always enormous pressure on funds from the curative side of health systems. Austria and Switzerland already have such foundations, as does New Zealand. We need to study their experiences and imagine more clearly what such foundations could do in our own countries.

If we can do that, we can develop campaigns that inspire small but important changes in behaviour, and which use social media to keep driving people to services that can encourage healthier choices – whether it is quitting smoking, exercising more, cutting down on sugary drinks or having safer sex. Well-funded independent Health Promotion Foundations are an excellent way of doing this.

United States

Dr Denise Cardo directs the *Healthcare Quality Promotion (DHQP)* department at the *National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)* of the *US Centers for Disease Control and Prevention (CDC)*. She is responsible for the CDC's campaigns on infectious diseases, which focus on antimicrobial resistances amongst other topics.

Antibiotic Stewardship: lessons from the United States by Dr Denise Cardo



Dr Denise Cardo

Antibiotic resistance, the ability of bacteria to survive antibiotic treatment, is one of the world's most pressing public health problems. In the United States alone, antibiotic resistant infections affect more than 2 million people each year and contribute to the deaths of 23,000. The frequency of antibiotic-resistant infections and infections for which there are no options for treatment is increasing at an alarming rate. It affects all the communities and impacts progress in modern medicine. It will get worse if we do not act now.

A comprehensive approach is needed to address this growing threat, including 1) prompt detection, response, control and prevention of infections, 2) tracking resistance and infections, 3) improving antibiotic use, and 4) developing new diagnostic and therapeutic tools.

Antibiotics are life-saving drugs that fight infectious diseases in people of all ages and manage complications common in the most vulnerable patients, such as patients undergoing chemotherapy for cancer, dialysis for kidney failure, and surgery. A great deal of modern medicine depends on the availability of effective antibiotics. Unfortunately, too often, these drugs are used inappropriately, meaning in ways that do not maximize their benefits and may actually harm patients. At least 30% of outpatient antibiotic prescriptions in the United States are unnecessary, and about half of outpatient antibiotic use may be inappropriate, including improper antibiotic selection, dose, or duration. In U.S. hospitals, an estimated 20 to 50% of all antibiotics prescribed are either unnecessary or inappropriate. Improving antibiotic use in all healthcare settings is critical to combating antibiotic-resistant bacteria.

Antibiotic stewardship is the effort to measure and improve antibiotic use. This means to use antibiotics only when needed, and, when needed, to use them correctly: the right drug at the right dose for the right duration. Antibiotic stewardship programs and practices ensure the optimal use of antibiotics in all healthcare settings and are a cornerstone of efforts to improve antibiotic-related patient safety and slow antibiotic resistance. Simply put, the goal of antibiotic stewardship is to maximize the benefit of antibiotic therapy while minimizing harms to both individuals and communities.

Key stewardship areas of focus for the *Centers for Disease Control and Prevention (CDC)* include measuring antibiotic use in healthcare settings to guide improvement and track progress; establishing standards and guidance for program implementation; supporting hospital and healthcare system efforts to implement stewardship; pairing education with provider-level interventions; and, working with diverse partners to implement effective strategies.

Patients and healthcare providers are partners in the effort to use antibiotics appropriately. For the last two decades, CDC has educated consumers and healthcare providers about appropriate antibiotic use and prescribing through the CDC's *Get Smart* program. Initially, the program focused on educating parents of young children, the general public and doctors in outpatient settings, specifically pediatric and primary care providers. In 2010, *Get Smart for Healthcare* was launched with a focus on improving antibiotic prescribing in hospitals and nursing homes. The program offers a variety of materials and resources to help healthcare providers improve antibiotic prescribing practices and raise awareness among patients about the importance of using antibiotics appropriately. CDC also collaborates with healthcare providers and patient organizations to promote appropriate antibiotic use and prescribing and distribute tools and resources to complement their efforts to improve antibiotic use.

While clinician and patient education is important, more is needed to improve antibiotic use. Appropriate use needs to be part of expected good clinical practices and incorporated in all healthcare initiatives to promote good health, healthcare quality and patient safety. Likewise, incentives for implementation of best practices as well as innovation and new technology will facilitate appropriate use of current and future antibiotics. We all need to embrace a holistic and timely approach to promote good stewardship programs, policies and practices to achieve national and local goals to improve antibiotic use, prevent infections and save lives.

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Tanzania

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Digitisation of the healthcare sector in Tanzania Summary of the presentation given by Marcos Robert Mzeru



Marcos Robert Mzeru

Tanzania is facing many challenges in the field of health. They include not only a lack of funding and qualified personnel, but also of medical equipment and infrastructure – challenges exacerbated by the size of the country. Moreover, administrative processes and approval procedures are just as protracted in the health sector as elsewhere. The outlook regarding the opportunities presented by the digitalisation is however positive: the number of people using smartphones is rising, as is the number of internet and mobile phone networks, including in more remote, rural regions. Moreover, tablets and computers with low power consumption are being developed. All of this offers great potential to further develop the health sector in Tanzania.

The Government has decided to do just this. In 2013, an e-health strategy was launched. An important element of this involves reducing the protracted approval procedures, which both deter investors and prevent people from engaging in the health sector. Clear fields of action were identified and prioritised and will be addressed using a step-by-step approach, including cooperations with partners and investors. In addition to this, the Tanzanian Government is working on a “data warehouse” to collect and process data, which to date has only been available on paper, in a more effective and expeditious manner. This should sustainably improve the quality of medical data and facilitate optimal access to it.

What are the success factors for the change in Tanzania and what can other countries learn from this?

Firstly, it is important to identify the right approaches and constantly consider the feasibility of implementing them. Tanzania is a large country whose infrastructure is lacking in many areas; an e-health strategy cannot be implemented overnight. The plan was initiated on a small scale and gradually expanded in various stages spanning months and years. Over the course of this process, existing elements were built upon and the progress made thus far was systematically improved. Local solutions proved to be effective in implementing the strategy, yet could not replace international expertise, which is needed to develop more comprehensive solutions. The specific circumstances of the target groups must be taken into account when developing programmes and solutions.

Secondly, it is important to prioritise and move forward together: the Tanzanian Government constantly set priorities and timeframes and cooperated with partners to achieve the goals of the strategy.

Overall, the fact that the use of information and communication technologies changes the entire work process, and people react to this in different ways, must be taken into account. Some people do not want to fundamentally change how they work. The younger generation, on the other hand, is increasingly calling for changes. And we have seen that the older generation should not be underestimated – for at times it is in fact older people who want to bring about change.

Thematic Groups

In four parallel working groups, the forum's participants discussed the following four topics:

- **Thematic Group 1: Using the potential of information and communications technology (ICT)**
- **Thematic Group 2: Improving the use of antibiotics**
- **Thematic Group 3: Fighting neglected tropical diseases (NTDs)**
- **Thematic Group 4: Mental health – overcoming the taboo**

Thematic Group 1: Using the potential of information and communications technology (ICT)

ICT is one of the greatest global drivers of innovation in the healthcare sector. Technological developments, significant potential cost savings, and changing behaviour patterns in digitally connected societies are accelerating the development of e-health. Digital solutions have great potential, for example bringing healthcare to remote regions through telemedicine, providing comprehensive analysis of data and training personnel in the medical sector. In many countries, the use of ICT for providing general healthcare can be further increased.

Central question for the group:

→ **How can the potential of ICT be used for the promotion of health?**

Host:

Dr Kerstin Cuhls, *Fraunhofer Institute for Systems and Innovation Research (ISI)*

Report by Dr Kerstin Cuhls

We are living at a time of increasing demand for health care. At the same time, we have a better knowledge base as well as clinical and technical solutions. Information and communication technologies (ICT) can play a major role in research and health care and help to provide information for improved health, such as telemedicine for remote regions, new analytics, predictive analytics and pattern recognition in data or for patients, freeing clinicians from routines and dull or drawn-out activities. However, technology cannot replace the human being in diagnosis, treatment, advice or direct communication. “TECH as a tool to augment being human” was one of the major statements to be made during this workshop. One of the key applications to be mentioned was that ICT should be used to make caregivers and doctors more humane.

The workshop was conducted in an explorative and open way starting with an individual mental time travel. Participants were invited to think about futures, perhaps alternatives, and possibly disruptive or even controversial futures. The goal was to identify and discuss the potential of ICT in health.

With ICT, we can measure, map and work with large quantities and different sets of data and alerts. But what is missing is the necessary infrastructure, a system for exploiting data and transferring it to healthcare delivery, real treatment, control and evaluation. Only then can real quality and certifications be ensured.

We set great store by empirical data, use “big data” for pattern recognition and share and exchange data – but we also need clarification and regulation here. In German contexts, questions about data security and privacy are always the first to be asked. But also in other countries, questions such as “who is the owner of the data?” have not necessarily been resolved. In the case of a patient’s data – is the patient the owner? Is the provider of the system the owner, or is it the researcher or the

insurance company? Who is responsible for the data? Who is in charge of preventing its misuse? Who is responsible for the accuracy of the data? How can ethical issues be resolved in this context? These unsolved questions evoke mistrust. Even if the quality of the data is good and there are valid and trustworthy sources, doubts remain and it is hard to rely on the data. There is a demand for a clear regulatory framework at the international level – but someone has to make a start.

Interoperability is a major issue in the health sector (ranging from information systems to more advanced Internet of Things applications). A lack of standards also hinders secure transmission of data. With incidents of sensitive data being targeted on the increase, blockchain technologies for encryption can provide new opportunities and autonomy within the system for collective benefits.

As regards data in the health sector and treatment of patients, there are unresolved ethical questions concerning the privacy of the individual versus the benefit for society and how to balance these. This can extend to issues such as the case of an infectious disease, the choice of a patient to exercise free mobility or the potential harm to the environment or the people around him/her. A great many ethical questions arise, and there is also the question of “free will” (some brain researchers doubt that it exists anyway). Can we choose whether to surrender our personal data? Are we under pressure to do so? Do we sell the data or are we offered an incentive? Are we convinced that it is “good” to make use of personal data? All these questions remain entirely unanswered.

Portals that bring together current global medical knowledge do not yet exist. While they should be created, there is, already now, a range of separate information portals on the internet. The upshot is a greater number of more informed patients and different patient behaviour, e.g. the “demand” for a specific treatment. Platforms can facilitate an enhanced interplay between global and local solutions.



Thematic Group 1 discussing the potential of information and communications technology for the health sector, chaired by Dr Kerstin Cuhls, Fraunhofer Institute for Systems and Innovation Research (ISI)

With the new developments in ICT, (medical) professions will change dramatically. New professions and new jobs will be created – somewhere in the realm between physicians, caregivers and technicians. Others will disappear. The role and reputation of the physician will change, a wide range of skills will be required in addition to clinical skills, and there will be fewer financial incentives. This begs a new question for the future: who still wants to be a physician under these circumstances?

A host of ideas for ICT applications in health and for better health were discussed. The following were addressed during the workshop:

- Different health utilities, “gadgets”
- Apps, for example trackers for quantifying one’s own health; quick advice in emergency cases; contacting a physician with mental health questions anonymously; giving permission to donate organs, etc.
- Platforms for data sharing, exchange or for decision support
- Biobanks

- Precision Medicine, Individualised Medicine, Genome Medicine approaches
- 3D printing of organs
- Metabolome Medicine or even Microbiome Medicine
- Drones for medicine or blood delivery in rural regions or for connecting urban centres (droneport needed)
- Robotics: robots, implants, exoskeletons, etc.
- Treatments at home etc.

...and lots more besides. But technology is not enough. Political frameworks are also needed, and ethical as well as equality issues were raised. ICT solutions in the health system can be very controversial because they are caught up between the desire for transparency and the need for safety, security and privacy. They promise to lower the burden of health costs and increase quality – once they are installed and running smoothly. However, actual benefits depend on implementation. Moreover, a number of participants expressed doubts as to their positive effects.

The health care system must be optimally designed and technologies must be integrated into existing frameworks and systems. These systems are already decentralised in certain cases and countries. For example, telemedicine solutions are not in competition with local doctors in Germany (because they are virtually non-existent), while in other countries or cases there is a centralised or strictly regulated system where telemedicine has no place and where it is difficult to integrate. Introducing a telemedical system in Abu Dhabi is a different matter from introducing telemedicine in Germany. However, learning from each other and connecting globally was considered to be very important as well as sharing data globally in a spirit of trust with clearly defined owners and responsibilities.

There was a consensus that new narratives are perhaps needed – and a collective effort that is transparent and global with clearly defined rights and responsibilities is required in order to fully exploit existing ideas. The participants of this workshop are ready to do their part in this regard.



Participants of the International German Forum gather ideas of using digital media to promote health.

Thematic Group 2: Improving the use of antibiotics

Heavy, often improper use of antibiotics around the world is causing more and more strains of bacteria to develop antimicrobial resistance. This means that antibiotics lose their effectiveness. Infections with resistant bacteria take longer to treat, have higher fatality rates, and are a heavy burden on healthcare systems. In Europe today, some 25,000 people die due to antimicrobial resistance each year. The number of deaths worldwide is estimated at 700,000. In addition to developing new antibiotics, diagnostic methods and therapies, proper use of antibiotics is key to preventing resistance and maintaining the effectiveness of antibiotics.

Central question for the group:

→ **How do we improve the use of antibiotics in our societies?**

Introduction to the topic:

Prof Petra Gastmeier, *Charité – Universitätsmedizin Berlin*

Host:

Christian Bason, *Danish Design Centre (DDC)*

Report

by Prof Petra Gastmeier and Christian Bason

How to improve antibiotic usage in our societies?

The workshop under the moderation of Christian Bason (CEO, *Danish Design Centre*) started with a short introduction of the workshop participants. In a short input talk, Prof Petra Gastmeier (*Charité – Universitätsmedizin Berlin*) reported about the development of antibiotic usage in various regions of the world. In addition, she addressed some measures to improve the use of existing antibiotics such as better diagnostics, use of vaccines, use of information technology to provide stop orders or alerts and possible financial incentives. However,

the probable two most important measures are giving feedback of prescribing habits and better information and communication. These measures should address antibiotic prescribers (hospital physicians, general practitioners and veterinarians), antibiotic consumers (patients, farmers) and the general population. As an example, she highlighted methods and tools used in the German project 'rai', which stands for rational antibiotic use by better information and communication.

In a first brainstorming round, the participants were asked to discuss with their neighbor the most important challenges to improve the existing antibiotic usage. In a second step, they were invited to identify possible solutions. Challenges and possible solutions were collected and summarized. In a further round, the participants were asked to form groups concentrating on antibiotic prescriber groups (general practitioners, hospital physicians), and antibiotic consumers (patients, general population) as well as health insurers, regulators and researchers and developers. For each individual group, its role was discussed, the necessary changes of behavior prescribed and proposals for change given:

General practitioners

General practitioners prescribe about 85% of all antibiotics used in the human sector. Barriers for appropriate prescriptions are lack of time to explain the difference between viral and bacterial infections to the patient and to communicate the risks properly. In addition, they often complain uncertainty if the infection is a viral or bacterial infection and would like to have better point of care diagnostic tests for confirmation. Furthermore, they often prescribe antibiotics because they want to react on to the patients expectations. Most of them do not get a timely feedback of their prescribing habits in order to compare with other colleagues.

As a consequence, better patient education (e.g. by fact boxes, handouts) and appropriate point of care tests are necessary. Furthermore, it has been demonstrated that a timely feedback of antibiotic prescriptions in combination with education and discussion is very effective to reduce antibiotic usage.



Prof Petra Gastmeier, Charité – Universitätsmedizin Berlin, and Christian Bason, Danish Design Centre (DDC), presenting the results of Thematic Group 2

Hospital physicians/pharmacists/nurses

Hospital physicians prescribe about 15% of all antibiotics used in the human sector, in particular many broad-spectrum antibiotics. In addition, many antibiotics are used for prophylaxis, often without any evidence. A better knowledge about the importance of the problem and the consequences is necessary and *antibiotic stewardship programs* are not yet established in many hospitals. Many clinicians still consider the problem of antibiotic resistance as a problem of microbiologists and infectious disease physicians and /or have insufficient compliance with infection control measures to prevent the spread of resistant bacteria.

As a consequence, an ongoing training about use of antibiotics is necessary. A feedback of antibiotic usage data is very useful and multidisciplinary teams to exercise antibiotic stewardship have to

be established in all hospitals. Their professional societies should set standards for antibiotic usage and infection control. Information about effective measures to reduce antibiotic usage and infection control should be shared across regional and cultural borders.

Patients

Many patients have not realized the role of the human microbiome and the need to protect it whenever possible. Their usually approach is to use antibiotics to kill bacteria.

As a consequence, patients should change their expectations to receive antibiotics and stop seeking behavior. In addition, they should stop using left over antibiotics and be informed about alternative therapies. Education of patients as early as possible is necessary.

General population

Today, the general population is not very well informed about the difference between bacterial and viral infections and the role of the microbiome. In addition, appropriate measures to stop transmission are not very well known.

As a consequence, they should be educated that staying in the bed during viral infections is normally as effective. This knowledge should be shared with friends and family and promoted by appropriate campaigns.

Health insurers

Until now, health insurances in most countries are not active in this field despite probable benefits – also financial ones – from more engagement.

As a consequence, they should take an active role by promoting and implementing action to reduce unnecessary antibiotic use and influence regulations to stop over the counter acquisition. They can also give incentives for better prescribing and information to the patients. That means they could give funding for campaigns to better inform the patients, give feedback to high prescribers and set targets for reduction.

Regulators

They have the task to create appropriate policies and to show evidence for policies; they have to promote collaboration across different sectors and education of the public and different stakeholders.

As a consequence, they should put pressure on stakeholders, promote international collaboration and support the *WHO* action plan. In countries where antibiotics are available over the counter, they should stop this procedure.

Researchers and developers

Until now, there is no good overview about the existing activities in the world. There is only limited information and evidence about cost effectiveness and studies to change behavior.

As a consequence, new downstream incentives and coordination of upstream research funding is necessary. A mapping of research activities should be performed and identify gaps and opportunities.

In a final discussion, it was summarized that the general approach towards people and their behavior should be changed. They should realize that antibiotic usage is causing damage of the individual microbiome and should be restricted to severe infections. However, in the case of severe infections, antibiotics should be available for all patients needing them. Therefore and because of the increasing global travel, the problem of antimicrobial resistance is a problem connecting the high and low income countries and a solution is only possible if high and low income countries are cooperating in this field. Finally, it should be mentioned that the discussion and recommendations above are largely focused on the challenges and opportunities facing developed countries.

Solutions from Thematic Group 2:

Doctors (General Practitioners/ Hospital Physicians)

Feedback to prescription and discuss with colleagues • “Reward” doctors who take time for patients • use better ways of diagnosis • Reduce blind prescription • Change prescription behavior • Provide doctors with alternatives, i.e. leaflets • Clear expectations and goals for clinicians • Automate feedback to doctors during their shift so they realize their prescribing has increased • Deferred prescribing – prescription you can use at a later point if you still need it • Wait and see prescriptions for UTI and RTI • Increase health literacy • Training for doctors • Engage oncologists, transplant surgeons • Personalized, precision prescribing • Greater physicians accountability • Consider antibiotics prescribing as an indicator of quality in healthcare • MOOC for doctors • Doctors: fast and frugal tree (simple algorithm) for prescribing antibiotics

Patients

Incentives for using novel AB only if really necessary • Empower/ inform patients on proper use of antibiotics • Encourage patients to use local methods for treating themselves e.g. take hot fluids for a common cold • Patient education on normal course of virals RTIs • General improvement of access to health care to reduce self-prescription • Give a break to patients when they’re sick, e.g. overuse of drugs is due to pressure to going back to work • Make adherence to treatment regimes easy

General Population

Make use of antibiotics visible in all areas: agriculture, medicine, water, etc. • Create sense of urgency • Create awareness of antibiotic usage • More focus on complications related to antibiotic • Communicate social value of antibiotics (and social responsibility) • Information (mass media, you tube, leaflets) • Make knowledge about how antibiotics work every-day knowledge • Patient EDU-tainment in TV-programmes about antibiotics and resistance • School education concerning use of medicines esp. antibiotics • E-bug for schools • Global education campaign on preserving antibiotic effectiveness • Educate about individual vs. social benefit (of taking / not taking antibiotics) • Change social norms • Change how we think about microbes – the obsession with germs may be unhealthy • Create and use behavioral insights to inform policy and communication • Make antibiotics something undesirable • Improve benchmarking and other tools to influence behavior

Health insurers

Incentives to promote appropriate antibiotic use • targeted feedback to prescribers • finance education/ information campaigns

Regulators

Embed in governance structures and ensure systems support • Create political will UNSG inter agency coordination group • Strong, steady long-term political commitment • Learn from successful national models • Delinking return of investment from volume sales of antibiotics • Reclassification of antibiotics & balance access vs. excess • National targets for reduction & reporting • Improved regulations for prescriptions • Policies limiting purchase/ trade of antibiotics • AMR principles to be included in all initiatives in healthcare • Regulate marketing of antibiotics • Cascading down financial incentives based on reduction targets • Supply chain management of antimicrobials • Incentivize hand-hygiene practices to prevent incidence and infection



How do we improve the use of antibiotics in our societies was the question for which a number of possible solutions were gathered.

Researchers and developers

Develop, encourage and support alternative ways in production and healthcare that eliminate or reduce need for antibiotics • Research and development for new treatments • Research on antibiotic resistance • Increased research investments in non-antibiotic treatment of bacterial infections • Improve current antibiotics • Reinforce the link between field investigation and research • Better diagnostic tools • Cheap and fast diagnostics • Point of care diagnostic developments • Tests virus or bacteria • Invest in interdisciplinary research to develop intervention • Create one-health academic capacity (education, funding and research) • Ensure “unintended consequences” monitored • Good monitoring systems on antimicrobial consumptions at prescriber/ hospital/ national level • Build local, state and national AMR surveillance frameworks/ initiatives • bringing together multi-disciplinary experts • Local/ regional studies on health and economic burden • Analyze complications of antibiotic use

Agriculture

Label meat products with “antibiotics warning label” • Change agriculture production model to discourage use of antibiotics • Ecological farming • Stronger regulations and economic incentives to reduce antibiotic use in livestock • Find ways to raise livestock with fewer antibiotics • Empower consumers of meat in order to reduce antibiotics in cattle

Use of IT and Data

IT solutions: alerts • Mobile apps with updated guidelines • International data-sharing and monitoring of usage of antibiotics and resistance outbreaks • Better data on the mortality impact of AMR on children and the elderly

Other

Bring sectors together to stop blame game • Bring together local farmers, city managers, medical doctors and communities to develop concrete projects tailored to their own situation • Allow pharmacists and shopkeepers in developing countries to be trained in dispensing antibiotics appropriately • Improve access to antimicrobial (especially in LMICS) • Spread the “microbiome” language • Rename antibiotics → people no longer ask for it • Use the whole workforce in health care

Thematic Group 3: Fighting neglected tropical diseases (NTDs)

Worldwide, more than one billion people suffer from one or more NTDs. These diseases occur primarily in tropical and subtropical regions, where medical care is often deficient and healthcare systems are weak. The bodily damage and disabilities caused by NTDs are mostly permanent, and this frequently causes substantial social and economic problems, such as unemployment and poverty that affect entire families. To fight NTDs, good preventive measures, effective diagnostic methods, treatment and research are essential.

Central question for the group:

→ **How do we achieve the international goals to fight NTDs?**

Introduction to the topic:

Dr Dirk Engels, *World Health Organization (WHO)*

Host:

Dr Oliver Gnad, *Bureau für Zeitgeschehen*

Report by Dr Dirk Engels, WHO, and Prof Ilona Kickbusch, Graduate Institute of International and Development Studies

In 2012, the public-private initiative “Uniting to Combat NTDs” launched the so-called “London Declaration” which aims to eliminate – or at least control – most of these 17 diseases by 2020. Today, over one billion people mainly in Africa and Asia profit from mass drug administration, individual diagnosis and treatment, surgery, care and rehabilitation.

In the lead-up to the Third International German Forum, NTD experts examined innovative ideas being key factors for this success and discussed necessary next steps.

Strategy

Look at NTD commonalities rather than their specificities. All NTDs need a tropical environment to perpetrate their transmission cycles, and they all have the same social determinants: poverty and poor living conditions. That allowed for grouping these diseases preparing a global response. It consists of five broad public health interventions targeting multiple diseases: appropriate case management, large scale preventive treatment, vector control, veterinary public health, and provision of water & sanitation. This move also allowed for linking NTD interventions to the 2030 Agenda for Sustainable Development.

Supply and logistics

Ask help from the private sector: pharmaceutical companies that had been the proprietary producers of now off-patent medicines without much commercial interest, to donate those medicines through their corporate responsibility programmes. In 2015, the pharmaceutical sector provided enough NTD treatments to treat over a billion people.

Connecting the dots

Faced with a very diverse and fragmented international partner's environment working on specific diseases a partnership model was needed. Under the umbrella of the "London Declaration", an informal alliance of global health and development organizations together with industry partners was created. Their common denominator: They were moved by the same goals and aspirations – laid-out in WHO's NTD Road Map – rather than by formal governance principles. Linking the NTD Road Map with the London Declaration proved to be a game changer in scaling up NTD interventions on a global level.

Funding

The initiative's funding schemes were based on global projections and investment benchmarks. But a simple message broke the ice: The fact that the delivery of several dollars' worth of donated medicines costs on average only 50 cents, and that spending such a small amount of money is just a fair complement to the international generosity of the private sector.

Research and Development

In terms of R&D and product development, progress has been made with some very pragmatic initiatives to improve existing products, such as recently the "triple therapy" for the sleeping sickness. Whereas little progress had been made in R&D up to 15 years ago, multiple product development partnerships (or PDPs) are now in place, most – if not all – Public Private Partnerships (PPP).

This extraordinary progress notwithstanding: If the NTDs should be eliminated by 2030 – as stated in the 2030 Agenda – the world community needs to widen and deepen its effort considerably. In its deliberations during the International German Forum, the Thematic Group on NTDs identified six levers to make progress towards this ambitious aim:

1. Move beyond NTDs

A better understanding is needed about how NTDs link to other poverty related diseases and to other development challenges. "Leaving no-one behind" – the mantra of Agenda 2030 – will only be achieved through health system strengthening. As a starting point, better interfaces are needed between NTDs and emerging diseases and the health security agenda.

2. Create synergies

One needs to build on NTD assets, particularly its 1 billion contacts yearly at the local level. If being used by the SDG community, this huge network could be used as an entry point for other issues and communities to bring about Universal Health Coverage and the SDG goals. Other examples of NTD assets are successful community empowerment to deliver NTD interventions, that has effectively built resilience in other areas, such as surveillance (e.g. continued Guinea worm surveillance in northern Mali), or responsiveness to disease outbreaks (e.g. contribution of NTD community workers to the Ebola outbreak response).



Dr Dirk Engels, Director of the Department of Control of NTDs, WHO, talking about fighting NTDs in Thematic Group 3

3. Change mind-sets

It is a widespread notion that NTDs seem to be confined to rural areas. This assumption may soon be proven wrong. Given the rise in world population and the thrive towards urbanization, disfavored peri-urban areas may soon be the new breeding grounds for NTDs. Surveillance and preparedness in urban centers is crucial to combat potential disease outbreaks early on.

4. Intensify donor dialogue

The NTD alliance' recipe for success is its loose structure. It not only allows for flexibility but – more importantly – for ad hoc “Alliances of the Capable” and most affected. To move beyond what has already been achieved, donors can expand their demand towards participants of the network. The introduction of shared funding, for instance, would reduce competitiveness and ease tensions between private sector and state actors.

5. Dive deep

Mapping of diseases is crucial. We need to work below the district level – on the level of local communities. To get there, the use of Big Data, Social Media applications and other forms of viral communication will be essential. New technologies will enable the NTD alliance to link even the smallest spot on the map to the 2030 Agenda; therefore, community surveillance will be key for reaching beyond the 1 billion people which are already treated. Also, such an approach would generate significant savings in resources which then could be used differently.

6. Enhance Research & Development

To be able to eliminate most NTDs by 2030, the R&D pipeline needs to be filled constantly. Open science and open data allow for a new level of (operational) research. If underpinned with a dense Monitoring and Evaluation system, much leeway can be made within a reasonable period

of time. But there is one important caveat: R&D needs to be funded mainly by the public sector because costs are too high to charge off. In short: There is no business-case. New funding models are needed, based on tailor-made PPP. If PPP funding for NTDs could be pooled with financing schemes for other poverty related diseases (such as the “Big Three”, HIV/Aids, Malaria, Tuberculosis), the chance to eliminate NTDs by 2030 will increase considerably. And the overall Sustainable Development Goals could be reached more quickly.

Assuming that success is possible, one key question remains: What happens then? In the case of Polio, we have witnessed that a disease which was declared extinct might return unexpected but forcefully. The lessons learnt from this experience can only be: We need a long-term strategic commitment. And we need the capacities on the ground: first and foremost, awareness.

But we should always remind ourselves: SDG 3 is not about diseases, it is about health and wellbeing. It's about people, not illnesses. If we lose the people off sight, we will soon face another – even greater – challenge: stigmatizing. Holistic approaches are therefore needed. Putting health and well-being into the center of human development and strengthening health systems at large would be a promising starting point.



How do we achieve the international goals to fight NTDs, was the central question in Thematic Group 3, chaired by Dr Oliver Gnäd.

Thematic Group 4: Mental health – overcoming the taboo

Around the world, one in four people is affected by mental illness at least once during his or her lifetime. These illnesses often severely disable people for a long period of time, or are compounded by other illnesses. In many societies, mental illness is a taboo and those affected by it are stigmatised. It is therefore necessary to examine how societies can arrive at a better understanding of, and better deal with, mental illness.

Central question for the group:

→ **How do we overcome the taboo of mental health?**

Host:

Natasha Walker, *Natasha Walker Associates*

Report by Natasha Walker

The aim of the group was to understand how people affected by mental health issues and societies deal with the topic and to identify elements that could be leveraged to overcome taboos and stigmatisation. The diverse group was comprised of technology developers, scientists, representatives of anti-stigma campaigns as well as of international organisations from developing and industrialised countries. This clearly stated that mental health is a cross-cutting issue in which every country is a developing country. Furthermore, the 2030 Agenda committed to promoting mental health; this momentum should be harnessed to bring impetus to the issue.

Conclusions of the Thematic Group:

1. Mental health: “non-issue” and stigma

One participant introduced the status quo, saying: “People don’t know how they should approach the issue”. In many societies, mental health remains a “non-issue”. It is not recognised on an equal footing with physical health, and is viewed either as a luxury concern for Western societies or as the devil’s handiwork. As a result, there is little knowledge about mental illnesses, how to treat them or the links that exist between mental and

physical diseases. Those affected are thus subject to prejudice and stigmatisation which can in turn lead the person – out of fear, shame or a lack of knowledge – to fail to seek help in time, if at all.

2. Where does the stigma come from?

On the one hand, people affected are afraid: many feel guilty and believe that their illness is their own fault, so they must deal with it alone, with no outside help. This is compounded by a lack of knowledge about whether the illness is even “real” and whether it can be treated. Further, there is fear of the treatment itself, which can be painful, humiliating or even life-threatening. Alongside this fear is the fear of social exclusion, of rights being withdrawn and of loneliness. Stigmatisation also leads the issue to go unseen and gives those affected the impression that they are alone with their illness.

Fear exists on all sides of society: people suffering from mental illnesses are feared themselves, for instance for being unpredictable or because mental illnesses are seen as infectious. As a result, the topic is demonised, ignored, not taken seriously or those affected by it even suffer active discrimination. The group reported that majority groups in society tolerate the active exclusion of people with mental illnesses. Nevertheless, the participants also noted many positive developments and results in terms of anti-stigma work over the past ten years, for example in Canada or South Africa. In Germany, on the other hand, it seems that mental health is becoming even more of a taboo subject.

3. A need for differentiation: mental illness or mental health?

A number of different syndromes count as mental illnesses, including schizophrenia, depression, dementia or drug abuse; these require different treatments and are considered differently in public debate. There is no one mental illness. In this regard, the participants called for them to be dealt with in a differentiated manner and called for the distinction between the terms mental health (prevention) and mental illness (where treatment is needed) to be more clearly emphasised.

4. What mechanisms can be used to combat stigmatisation?

The participants cited numerous approaches used to combat the stigma attached to mental health around the world, with different and country-specific methods:

Talk about mental health: mental health should feature more prominently in public life – through different communication channels. For example, a broad range of people can be reached via the press and social media. There was a consensus over the need for society to be more aware and informed about mental illnesses and the treatment options available. Another particularly effective approach is for those affected – both celebrities and people from everyday life – to tell their personal stories to embolden others.

Share examples of cases that have been successfully treated: many illnesses can be treated very effectively and at times very quickly, e.g. through psychotherapy, discussion or medication. Successfully portraying how treatments can tangibly improve the lives of those affected can serve to reduce the social taboo and remove the stigma, something proven by how the taboo surrounding HIV/AIDS has been broken.

Strengthen contact-based approaches: those affected should be more involved in efforts to combat stigmatisation. They are taken seriously, can directly help others affected and serve as credible examples of the fact that problems can be overcome as well as how this can be achieved.

5. At what levels do we need to take action?

Local and national approaches

Top-down or bottom-up: the success of local and national approaches varies from country to country. On the one hand, there are countries where the diverse activities in the field of mental health are initiated through action plans at the national government level (e.g. in the United Kingdom). In other countries, people tend to place more trust in local-level, grassroots organisations (e.g. in India).

Schools and businesses: schools and companies were identified as particularly important actors at the local and national level. Mental illnesses have a negative impact on children's education and development, and schools are the most important

place for prevention. Companies have a vested interest in having healthy and productive workers. Mental illnesses account for many days off work and the consequent economic losses – companies can thus increase their competitiveness by promoting the mental health of their employees.

Global approaches

Research and evidence: at the global level, support has been given to a coordinated research approach that uses a broad evidence base to prove how each form of treatment works.

Technology: digital approaches offer enormous potential for prevention, awareness-raising and treatment (e.g. online consultations/telemedicine), as well as for the reach of anti-stigma campaigns. The possibilities to reach a large number of people around the world at little cost by using technology could be further exploited.

Movement: standing shoulder to shoulder at the global level was considered to be both necessary and well-timed when it comes to further promoting the topic of mental health within the framework of the 2030 Agenda, as well as to generating political tailwind. This could, for example, take the form of a multilateral platform with stakeholders from the fields of politics, academia, civil society and business. The participants saw the G20 or EU as relevant actors here, and considered that Germany should take a leading role.



Thematic Group 4 tackled the question: How do we overcome the taboo of mental health?

Discussion following the Thematic Groups

“Imagine a movement for global health. Everyone is involved: governments, companies, the academic community, civil society, healthcare professionals. What can you contribute to this movement?”

JANA PAREIGIS, DEUTSCHE WELLE, CHAIR

What are the levers and possible next steps to improving health around the world? What actors should become involved, what can individuals contribute and in what areas do we need to cooperate? The participants discussed these questions following the working sessions in their Thematic Groups.

Openness to new ideas and the willingness to change were key in the medical sector, said **Dr Sameera Al Obeidli** from the Abu Dhabi Telemedicine Centre. “We must identify the people who drive innovation and change, and who are not afraid to take the first step.” For example, it was important to consider what the role of a modern generation of healthworkers or doctors might look like in the future. “The world is changing much faster than we realise”, noted **Lucien Engelen** from the Radboud University Medical Center in the Netherlands, stating that, in the future, the demands on the medical sector would increase. It was thus important to adapt not only the curricula for students but also for nurses and care staff in order to prepare them for these changes.

Dr Christoph Beier, management board of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, called for a strong platform for global learning: “We must better integrate innovative initiatives in our work and support them to ensure they are successful.” He noted the need for incentives and regulatory framework conditions that encourage people to be creative and to develop good solutions, as well as platforms to pool good ideas and demonstrate concrete ways in which they can be implemented. **Prof Ilona Kickbusch** from the Graduate Institute of International and Development Studies agreed and praised the inclusion of health in the G20’s 2017 Agenda. She suggested establishing Berlin as a hub for the development of innovative solutions to global health issues: “Berlin has been a hub for global health over the past two days. We could expand this and make the city a global centre for learning. I think this would be a wonderful approach.” The importance of global platforms and movements was also emphasised by **Patricio V. Marquez** from the World Bank Group. “We managed to provide treatment for HIV/AIDS because we had a whole movement that demanded it. Let’s learn from these experiences.”





Discussions of the results of the Thematic Groups: Prof Ilona Kickbusch and Dr Dirk Engels talking to Prof Richard Layard

A further key discussion point was how stakeholders interact at the global, national and local level in the field of health. **Florian Westphal** from *Doctors without borders* highlighted the importance of the *World Health Organization (WHO)*, stating that existing governance instruments had to be strengthened and countries should jointly live up to their responsibility to the most vulnerable above all. The fact that many challenges require global solutions was underlined by **Dr John-Arne Røttingen** from the *Coalition for Epidemic Preparedness Innovations (CEPI)*. International norms and standards were needed, for instance for effective data exchange, but equally for joint investment, he said: “Some challenges are so vast that the investment required could not be provided by any single country.” In this regard, efficient mechanisms for cross-country cooperation were needed to ensure that the right priorities are set, resources are pooled and investment is made in technology that could not otherwise be brought to market. **Dr Pamela Collins** from the *US National Institute of Mental Health* pressed for better and earlier cooperation between the political and research communities so that the results of research can be more effectively implemented. Better networking of research platforms was key, too.

Prof Wolfgang Gaebel from the *Aktionsbündnis Seelische Gesundheit* used the example of anti-stigma campaigns in the field of mental health to demonstrate the need for top-down and bottom-up approaches to complement in order to advance topics.

Handling medical data was a further core component of the discussion. **Dr Matthieu-P. Schapranow** from the *Hasso-Plattner-Institut für Softwaresystemtechnik* advocated global standards on data collection, calling this the first step towards amalgamating and sharing data from different countries. “We have a great deal of data in the field of health”, agreed **Dr Philipp Glaser** from the *French Institut Pasteur*, “but what are we doing with it?”. Doctors needed support to use the data available in a useful manner, he added.

Prof Morten Lindbæk from the *University of Oslo* pointed out that it was not only the big approaches that were needed, but for each and every one of us to act to bring about change. “The next time you go to your doctor or to the hospital, ask them for their antibiotic-prescription profile. If you don’t get an answer, then you could help to ensure that in the future an answer to this question can be provided.”

Hacking for global health



Hacking for global health: three finalist teams present their ideas on how to improve child and adolescent health in Kenya at the third International German Forum.

An innovative format for future-oriented healthcare solutions: “Hacking for global health – from local to global health” by the Federal Ministry for Economic Cooperation and Development (BMZ)

“Hacking for global health” – under this heading, the BMZ ran a hackathon (a newly coined word combining ‘hack’ and ‘marathon’) for the Federal Chancellor’s third International German Forum. The aim of the innovative format was to develop concrete digital solutions to improve child and adolescent health in Kenya. The kick-off took place in Nairobi in November 2016, in close cooperation with local partners and the GIZ health project entitled “Supporting the health care sector in Kenya”.

Over 72 hours, 50 IT and healthcare experts worked with 9 mentors in 11 teams to come up with many ideas that incorporated the use of digital technology to build a healthy future. Following this, the three best teams were supported to work together with experts to further develop their prototypes. These teams were then invited to Germany from 16 to 24 February, when the young

developers from Kenya met stakeholders from the German healthcare industry, civil society and academia. This enabled them not only to share experiences from their learning but to discuss possible ways of connecting their innovative ideas to the African market. Within the framework of this study tour, the individual teams met representatives of the German-African Business Association, the German Healthcare Partnership as well as of MERCK and Bayer. The teams were able to deepen their knowledge of digital solutions used in the health sector in Germany during a visit to the *Charité* Berlin.

At the invitation of the BMZ, a reception took place at the Impact Hub Berlin on 20 February 2017 (the night before the International German Forum). The three teams presented their ideas to some 60 participants and an expert jury comprised of representatives of the BMZ, the German Healthcare Partnership, the Federal Ministry of Health, *Charité* and the African organisations “HealthEnabled” and “Capacity for Health in Africa”, and discussed them in-depth. Finally, after careful deliberation, the expert jury chose a winning team.

It was the following idea that won over the jury: the Dev-Ops team's approach draws on the widespread practice in East Africa of saving in collective savings groups ("Chama"). Through an app, which primarily uses the M-Pesa electronic payment system's effective infrastructure, this traditional custom would be used to facilitate micro health insurance schemes. This would enable medical treatment for children to be funded and improve many people's access to healthcare systems. The solutions proposed by Team Iris, for a digital platform where taboo topics could be discussed, and Team I-FRAU, for a text-message programme to support pregnant women, were also highly commended.

On 21 February, the results of the hackathon competition were presented at the Federal Chancellor's third International German Forum. The hour-long session was opened by BMZ Deputy-Director General Hans-Peter Baur. In his speech, Hans-Peter Baur congratulated all the teams, saying: *"We need more formats using the creative potential on the ground to promote local-level innovations."* After the three teams had presented their ideas and prototypes a second time, questions from the audience animated a discussion about the sustainability, feasibility and scalability of the solutions. One of the 120 experts present stated: *"You are the future"*, referring to the three teams' innovative way of thinking. The audience and jury responded very positively to the proposed solutions and praised the innovative nature of the format. The significant value-added of digital healthcare solutions, in developing countries in particular, was also repeatedly pointed out.

The winning team will receive funding from the BMZ's "Make IT initiative", which collaborates with digital businesses as well as selected actors and advocacy groups to support IT start-ups in developing and emerging countries. The initiative aims to help foster inclusive and sustainable economic growth. To enable it to continue its work to develop its solution, the winning team will not only be given access to relevant mentors and experts, it will be provided with resources to rent a workspace, travel to events in the region or create marketing material to advertise the solution. This will facilitate targeted access to potential promoters and investors and enable a sustainable use of the new solution.

Contact persons at the Federal Ministry for Economic Cooperation and Development:

- Dr Katrin Bornemann (Education and Digital World division): katrin.bornemann@bmz.bund.de
- Imke Kuhn (Health division): imke.kuhn@bmz.bund.de

Links:

- Video: https://www.bundesregierung.de/Content/DE/AudioVideo/2017/Video/_streaming/2017-02-22-streaming-auftaktdiskussion-drittes-internationales-deutschlandforum-EN/2017-02-22-streaming-auftaktdiskussion-drittes-internationales-deutschlandforum-EN.html
- Deutsche Welle article: <http://www.dw.com/de/hacking-for-health-kenianische-studenten-gewinnen-mit-kleinspargruppen/a-37670768> (only available in German)
- Article published on Healthy Developments about the hackathon competition: http://health.bmz.de/events/Events_2017/kenyan_it_students_impress/index.html



The Federal Chancellor congratulates Ethredah Chao (left) and Jackson Kiaire (right), the Kenyan winning team from "Hacking for global health". They developed a solution for parents on low incomes who form savings groups to collect money for healthcare for their children.

Innovation Spotlights

The Innovation Spotlights at the third International German Forum highlighted the contribution that resourceful projects by innovators from different parts of the world can make in tackling challenges in the field of health.

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Bright Simons, recipient of the *African Innovation Foundation's Lifetime Achievement Award*, is a social innovator, entrepreneur, writer and researcher. He is the founder and president of *mPedigree Network*, a company keeping counterfeit medicine out of the market.

mPedigree Goldkeys: Trust Engineering for Health Transformation by Bright Simons

It is a testimony to the 'broadness' of the current understanding of health innovation that at this year's International Forum convened by the German Federal Chancellor, I found myself sharing the podium with a former journalist turned drone-port visionary; a biomedical scientist hunting for odd DNA strands on New York trains; and a Malaysian data prophet who advises sports authorities about potential epidemics.

I was certainly not out of place: a former student leader turned good governance activist turned social entrepreneur building anti-fraud technology solutions. My path has been as eclectic as any.

But how did the journey start for me?

I was a Ghanaian migrant in Europe dealing with the sudden torments of allergies. Word was going round that the food was the culprit. Too many chemicals, immature biotech and the like, and so 'organic food' could be the cure. The first time I saw the 'organic seal' on the pack of cereal I knew my life's work was sealed: the power of TRUST was laid bare before me. My only assurance that this pack of grain was whole was because of this seal. I resolved then to become a Trust Engineer. A few twists along the way, and the invention of mPedigree begun as Virprox, then became 'Goldkeys'.

The African members of my team of doctoral students had all encountered peddlers of shady medicines before, usually on public buses celebrating one tackily named herbal concoction or another.

We would soon learn however that counterfeit and substandard medicines constituted as much as 25% of the total trade in medicines in Africa according to very credible estimates. The biggest challenge was clearly the inability to track medicines and to carefully record how, when and where problems were occurring. The entire supply chain was opaque, making it vulnerable to thefts, diversions, corruption, trafficking and widespread abuse of medicines. Worldwide, counterfeit drugs and pharmaceuticals account for at least 10 percent¹ of all medicine on sale, and kill up to 2,000 people daily.

It was a clear case of broken institutions and a fragmentation of the layers of trust that enabled safe intercourse among different levels of the health ecosystem.

We had virtually no resources to begin with. But our insight was penetrating: we will link each part of the supply chain with the technology best suited for it, and we will partner with incumbents to create a system that was disruptive only in aggregate.

We partnered with Hewlett Packard on the web and internet based system to map the factories and warehouses where the products are made to trackable objects in virtual chain of distribution networks. We did R&D work with Xerox on technologies to get each physical pack of medicine to be tracked in this system embossed with a unique ID, think one-time password. We partnered with dozens of the world's largest telecom companies to create toll-free SMS hotlines for consumers to text-message these one-time passwords to the hotlines. We partnered with TW and others to figure out the smartest ways to deliver instant reports to consumers and patients who queried the system this way with the latest status update for that specific pack of medicine they have in their hands. We designed an ecosystem made up primarily of non-traditional health actors through which the flow of trust

¹ <https://www.theguardian.com/technology/2012/aug/26/new-africa-ghanaian-tech-innovator>



Bright Simons from the mPedigree Network in Ghana talking with Natasha Walker, chair of Thematic Group 4

could have revolutionary consequences for health governance through a radical transparency regime which enables us to follow a pack of medicine from a factory in a Paris suburb through broken supply chains all the way into the hands of a mother in Sokoto, Nigeria, and offer that mother the assurance that what they are just about to administer to their child would not end up maiming or killing her.

Through our pioneering advocacy and lobbying efforts, three countries in Africa – Nigeria, Tanzania and Kenya – with more poised to follow, have integrated consumer oriented traceability into their safety regulations at different levels, and in the case of Nigeria it is actually mandatory for malaria medicines and antibiotics to be tracked in this manner.

More than a billion units of medicines and nearly a hundred million people have been impacted by the system in what is genuinely one of the quite revolutions ongoing in the global health system. And I say ‘global’ not only because we build software and deploy them for visibility across what are

undoubtedly some of the most complex global supply chains imaginable, but also because we have indeed rolled out our services beyond Africa into Asia, with multiple on the ground offices and operations in the South Asian region.

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Sofia Ahsanuddin is an aspiring physician and health policymaker. As executive director of *MetaSUB International Consortium*, she is leading an international research network dedicated to examining microbes in public mass transit systems in over 70 cities around the world.

Metagenomics Applications for Global Antimicrobial Resistance Surveillance by Sofia Ahsanuddin

“Antibiotic therapy, if indiscriminately used, may turn out to be a medicinal flood that temporarily cleans and heals, but ultimately destroys life itself.”

- Félix Martí-Ibáñez, 1955

The emerging threat of antimicrobial resistant microbes is a formidable challenge for clinicians, public health officials, and policymakers because it implicates increased risk of mortality, morbidity, and associated healthcare costs the world-over. It is estimated that antimicrobial drug consumption will increase by 67% by 2030 and will nearly double in Brazil, Russia, India, China, and South Africa, an increase that is largely due to the skyrocketing demands for livestock in middle-income countries and a shift to large-scale farms where antimicrobial drugs are used extensively. Synchronous and harmonized localized and global antimicrobial resistance surveillance programs are therefore essential to providing robust data regarding the incidence, prevalence, and distribution of resistant pathogens and antimicrobial resistant determinants. Such data is sorely needed to develop streamlined, targeted, and effective preventive strategies that delineate the future epidemiology of antimicrobial resistant infections while limiting the emergence of resistant pathogens. Policymakers can utilize this data to

formulate evidence-based regulatory policies to inform the appropriate use of antimicrobial drugs, infection control practices, and drug discovery.

Recent technological advances in next-generation sequencing (NGS) and metagenomics has enabled large-scale coordinated efforts to characterize the global distribution and prevalence of microorganisms and their hosts, thereby providing researchers and clinicians a more comprehensive understanding of the functional microbial and genetic dynamics of organisms as they acquire antimicrobial resistance (AMR). Metagenomics methods coupled with standardized metadata collection can allow researchers to analyze all of the DNA present in environmental samples to construct a complex portrait of entire microbial ecosystems and mechanisms of antimicrobial resistance gene acquisition via mobile elements like plasmids or other virulence traits like biofilm formation and pathogen residence on abiotic surfaces. More specifically, NGS methods have been



The Innovation Spotlights session. Sofia Ahsanuddin (left) presents the work of her research network METASUB, which studies microbes in the public transport systems in over 70 cities around the world. The journalist Jana Pareigis (centre) was the conference moderator of the third International German Forum.

used to uncover novel regulatory networks and links to AMR that are modulated by nucleic acid (DNA/RNA) base modifications, and which underlie biological processes central to cellular function.

The need to integrate traditional public health surveillance methods with novel assessment of AMR determinants has never been greater. To investigate the underlying mechanisms of AMR, the *MetaSUB International Consortium* is a global urban metagenomic initiative founded in 2015 that aims to create an unprecedented geospatial map of the microbial life present in mass-transit systems and antimicrobial resistant markers in over 70 cities around the world. The focus on mass-transit systems is particularly intriguing given the fact that 54% of the world's population now lives in urban areas and that mass-transit systems represent one of the most densely populated and highly trafficked human-microbial-environmental interfaces. The consortium's work in the field of antimicrobial resistance surveillance is specifically targeted at delineating the factors of AMR localization and the potential effects on microbial fitness and the epigenetic stratification of those AMR genes. This is the first study of our knowledge that will create a comprehensive map of the world's microorganisms and AMR markers in urban environments.

To date, over 7,000 environmental samples capturing high-molecular weight DNA were collected in over 40 cities around the world. The DNA is in the process of being extracted and sequenced to search for the presence of known and novel modified nucleic acids. Once the DNA is sequenced, researchers in the consortium will employ various computational tools to characterize and visualize the data to quickly map the species into functional taxonomic groups, detect AMR genes and markers, and link them to epigenetic status. Our preliminary data thus far suggests that different cities have distinct AMR profiles, whereby different AMR genes are enriched in different cities. The underlying causes for these differences in enrichment are currently unknown.

Future Directions

Investigating the prevalence and distribution of AMR determinants will aid in understanding the emergence and incidence of antimicrobial resistance. We intend to utilize the *Global Priority*

*Pathogens List (PPI)*¹ of antibiotic-resistant bacteria developed by the World Health Organization to inform our work as we map the prevalence of these various organisms in over 70 cities around the world. Moreover, we recognize the importance of routine longitudinal surveillance to monitor pathogen emergence, evolution, and antimicrobial resistance susceptibility.

We are particularly interested in examining the resulting species and their epigenetic changes in the context of population density, proximity to healthcare centers, and the presence of mobile plasmids to assess the risk of plasmid-mediated AMR. We are also actively seeking to further investigate the correlation between city-wide antibiotic use and antimicrobial resistance prevalence in mass-transit systems located in their respective cities. Global comparisons of AMR genes in some of the most densely-trafficked cities of the world will add substantially to our knowledge of AMR prevalence and microbial life.

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Dr Dhesi Raja is an epidemiologist that is passionate about data science. With *Artificial Intelligence in Medical Epidemiology (AIME)*, he set up a platform that uses artificial intelligence to predict outbreaks of disease three months in advance.

AIME Inc., predicting disease, saving lives by Dr Dhesi Raja

AIME Inc utilises artificial intelligence to predict deadly disease outbreaks, in order to mitigate and eliminate them.

Our platform provides its users with the exact geo-LOCATION and DATE of the next dengue, zika and chikungunya outbreaks 3 months in advance quickly and intuitively. Along with the prediction we incorporate a fully customizable analytics platform to make sense for our users in public health by providing live dynamic charts, historic mapping of diseases, rumor reports from social media & prediction that is driven by A.I. With this information public health governments are able to effectively tackle diseases and save money.

¹ http://www.who.int/medicines/publications/WHO-PPL-Short-Summary_25Feb-ET_NM_WHO.pdf?ua=1

Disease Control (DC) plays a significant role in the expenditure of nations, it is the most direct action Public Health specialists can use in order to mitigate, reduce or eliminate the burden of diseases. Our project is currently focusing on 3 vector-borne diseases¹, called Dengue and Zika and Chikungunya, which significantly impose a socioeconomic burden in the nations affected by them.

These diseases are transmitted by the same vector, mosquitoes, most significantly a type of mosquito called *Aedes Aegypti*. Dengue, which is a particularly old disease, with cases being reported as early as the 1960s², still causes death and severe pain to an increasing number of individuals. This is because, when public health professionals do not know when or where the next outbreak is going to happen, they tend to make uninformed decisions in how to act, investing funds and using different DC methods inaccurately.

In Brazil, for example, sources showcase more than USD one billion spent just managing dengue.³ In Asian countries like Singapore, studies have shown a yearly increment of the cost of vector DC, reaching numbers as high as USD 207 million⁴ in 2007. In Malaysia, the cost of dengue vector DC reaches 73 million USD annually⁵.

Currently, AIME is able to reduce both the burden of the disease and the economic impact these diseases impose in the affected nations, by creating an artificially intelligent platform, capable of accurately predicting the next Dengue, Zika and Chikungunya outbreaks 3 months in advance. This platform will allow public health professionals to take informed decisions in the areas they should take action, instead of using funds in areas that are not necessarily heavily affected by the diseases.

After 3 years of Research and Development (R&D), we have designed a platform capable of predicting, 3 months in advance, the next dengue outbreak with an accuracy of 88.62%. The platform has been

1 http://ecdc.europa.eu/en/healthtopics/climate_change/health_effects/Pages/vector_borne_diseases.aspx

2 <http://www.denguevirusnet.com/history-of-dengue.html>

3 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4429239/#bib0285>

4 [http://www.healthxchange.com.sg/News/Pages/Dengue-cost-Singapore-\\$25000-every-hour-in-2007.aspx](http://www.healthxchange.com.sg/News/Pages/Dengue-cost-Singapore-$25000-every-hour-in-2007.aspx)

5 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4703248/>

field tested in Malaysia and in Brazil, and currently a pilot of the platform being implemented in the Public Health government of Sao Paulo.

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Inge Missmahl is a psychoanalyst, founder and director of the humanitarian organisation *Ipsa*, that specialised on mental health care in different cultural settings. *Ipsa* has developed a programme to train people to be “psychosocial counsellors” in Afghanistan.

Culture-sensitive mental health service through value-based psychosocial counselling by Inge Missmahl

In sum, this article discusses 3 topics

1. The possibility of translating knowledge and findings from a country such as Afghanistan to the current situation in Germany.
2. A new paradigm in dealing with mental health problems that views people as capable of acting at all times.
3. The scalability of the provision of basic mental healthcare through technology.

Our work in Afghanistan was based on the finding that the diagnoses and psychiatric or even psychotherapy treatment methods used by the West could not be applied to the psychosocial and cultural context in the country without any adaptation. On the other hand, we repeatedly saw people in seemingly hopeless situations and with symptoms of mental health issues swiftly regain the sense to act meaningfully following well-structured talks and targeted intervention.

This realisation motivated us to closely analyse the different interactions that brought about this change and to develop an approach to psychosocial counselling focused on restoring the person in question’s self-efficacy. We want to enable people to help themselves, with the support of a psychosocial counsellor who is one of their own; Afghans help Afghans.

In 2014 and 2015, we treated over 110,000 patients in Afghanistan. Over 80% had persistent headaches as a symptom, and a further 66% showed signs of depression and anxiety. On average, we saw a clear

improvement in the symptoms after three sessions. It has become compulsory for everyone who works in the public health system in the country to use our psychosocial counselling approach, including the accompanying quality controls.

We have tested the efficacy of our psychosocial counselling approach through a controlled study⁶ and found that the psychosocial counselling led to a significant reduction in symptoms of anxiety and depression. Counselling clients demonstrated far better coping strategies and ability to deal with psychosocial stress following the sessions.

In the ensuing years, we recognised that our counselling approach could also be implemented in other countries with similarly challenging circumstances: people in emerging countries, who have to deal with the rapid pace of change from traditional practices to modern life; people in countries with

⁶ Ayoughi, S., Missmahl, I., Weierstall, R., & Elbert, T. (2012). Provision of mental health services in resource-poor settings: a randomised trial comparing counselling with routine medical treatment in North Afghanistan (Mazar-e-Sharif). *BMC Psychiatry*, 12:14.

asymmetrical wars and in general people subject to huge psychosocial stress and who have to come to terms with changing social roles.

This is now the case for migrants who come to Germany. Many of them have had violent and traumatic experiences, which pose a critical barrier to successful integration. The closest Western diagnosis for many of these people would be post-traumatic stress disorder (PTSD). However, this does not do their situation justice, for the social and political suffering and injustice they have been subject to is reduced to an individual pathology. This doubles the level of victimisation.

We need a new paradigm that takes into account the specific cultural context, that considers people to be capable of acting at all times and that establishes a different way of leading discussions: we need new responses to psychological strain and mental health problems, new approaches and interventions to support people in restoring their psychosocial ability in the context in which they live, in using resources and making sense of their situation.



Inge Missmahl, director of Ipso, talking to Dr Dhesi Raja, Artificial Intelligence in Medical Epidemiology (AIME), from Malaysia

In Germany, we are positioning our approach as between curative medicine and social work. We want to provoke a debate about how this non-pathologising, salutogenetic approach to psychosocial counselling can become an affordable service within the regulatory system, in order to make provision of the counselling sustainable. We started in Germany in the spring of 2016 with a year-long training programme for 92 refugees from 17 countries to become psychosocial counsellors. These counsellors are now successfully working with clients.

In order to reach people in Afghanistan who want to remain anonymous, for whom travelling to the nearest clinic is dangerous or talking in person is not socially acceptable, we have a digital counselling service, with integrated quality control for sessions, which enables our counsellors to have a personal conversation with clients regardless of their location. The online video counselling offers a low-threshold, nationwide access to psychosocial counselling and helps to overcome social isolation, shame and stigmatisation more quickly. The scalability of the service offers unimagined opportunities. We now also use it for refugees in Germany and want to expand this to all of Europe as well as refugees' countries of origin.

Jonathan Ledgard is a Scottish novelist, leading thinker on advanced technology and nature in emerging countries, and founder of the *Droneport group*. Its goal is to build droneports in Africa to accelerate medical and emergency cargo transport using flying robots.

Africa Rising **Summary of the presentation given** **by Jonathan Ledgard**

Africa is rising and according to the plans of Jonathan Ledgard, founder of the *Droneport group*, it will host the next important global innovation to logistics: droneports. Although Africa has been seeing a strong economic development over the past years, a major challenge remaining is the expansion and maintenance of infrastructure in the transport sector. There are still many remote areas with no connection to all-season roads, thus lacking easy access to basic necessities such as healthcare. Because of many regions still suffering from a lack in economic capacity, a solution to these problems not only has to be effective, but also resource-saving and cost-effective. Mr Ledgard, former senior foreign correspondent at *The Economist* and director at the *Swiss Federal Institute of Technology*, believes in accomplishing this



Jonathan Ledgard, Rossums & Droneport, is planning the construction of droneports in Africa.



Participants discussing the Innovation Spotlights

combination through the use of drones for aerial logistics. His project *Red Line* seeks to develop drone routes and the associated infrastructure for the delivery of goods such as medication in remote areas, hereby enabling a better provisioning of required supplies and an even faster response in future humanitarian crises. The project includes two parallel systems: The *Red Line* routes will employ small drones with a range of 50 kilometres for emergency deliveries up to 10 kg, which could represent a supply of 20 blood bottles, for example. This line is thought specifically to facilitate a rapid access to remote areas. The *Blue Line*, on the opposite, is meant to be a commercial cargo route with a range of approximately 100 kilometres and drones carrying up to 100 kg. This could also be used in and around cities to ease logistics in urban environments.

To bring this idea to life, Jonathan Ledgard joined forces with renowned architect Sir Norman Foster to design a draft of the droneport of the future, being affordable as well as culturally and geographically adequate. He came up with a concept hosting both the *Red* and the *Blue Line*

and a safe landing space for the drones. Built out of bricks, the structure is designed to leave a small ground footprint with raw materials being locally available and an easy set-up which can be executed by the local communities. Furthermore, the building is thought not only to be the start and landing space for drones, but also to host many other facilities such as a health clinic and a post room, therefore integrating the building in the daily community life.

The project of the world's first droneport represents a big potential for the further development not only in African countries but also globally as it helps connecting poorer communities in a more resource-saving and effective manner. Being strongly involved in the construction of infrastructure and the running of the cargo routes, the local communities will be able to create job opportunities and develop their own expertise. This innovative use of drones seeks to resolve major challenges in an unprecedented manner, varying strongly from the approach of drones being used in the military or the last mile consumer delivery being tested by large commercial companies.

Discussion with Federal Chancellor Dr Angela Merkel



The topic of health is closely linked to one's dignity, said Federal Chancellor Dr Angela Merkel in her introductory statement.

“For me, the topic of health is extremely important in shaping the global order.”

FEDERAL CHANCELLOR DR ANGELA MERKEL

In her introductory words, Federal Chancellor Dr Angela Merkel underscored the relevance of health to wellbeing around the world. *“The topic of health affects everyone. It is closely linked to one’s dignity and ability to actively take part in social life.”*

Therefore the 2030 Agenda included health as a key sustainable development goal. *“It is a very ambitious goal – for industrialised countries and even more so for countries on the brink of more prosperity or that still have a long path of development ahead of them”,* the Federal Chancellor stressed. For the German Government, promoting health around the world was a key issue that she had personally

worked on, e.g. within the framework of the G7 Presidency in 2015. Key subjects were antimicrobial resistance and neglected tropical diseases – two topics that were further addressed at the third International German Forum.

Health would also play a significant role in Germany’s 2017 G20 Presidency, with the topic of pandemics particularly important: *“On the one hand, we saw how slow and uncoordinated the reaction of the global community was to Ebola, yet on the other, we know that there are diseases that spread much faster.”* After the Ebola crisis,

Germany, Norway and Ghana jointly initiated a process in the United Nations, as part of which recommendations on preventing and better responding to health crises were drafted. Building on this, the Federal Chancellor announced that an exercise on how to better respond to pandemics in the future will take place at the G20's first health minister conference this year.

The Federal Chancellor also highlighted the opportunities to promote health presented by information and communications technology, and congratulated the Kenyan winners of the Hacking for global health competition. The potential offered by the digital revolution was “fantastic”, but “naturally it had to be successfully put into practice”. Here, Germany also had something to learn. Merkel cited mental health as an “oft-neglected topic” and highlighted that, this year, the main topic of the WHO's World Health Day was depression.

Four speakers from Denmark, the United Kingdom, Ghana and India presented their projects, findings and views on the key topics of the third International German Forum.

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Morten Elbæk Petersen is the CEO of *sundhed.dk*, the Danish public e-health portal. Being the backbone of national e-health infrastructure, it provides Danish citizens and healthcare workers with information and access to personal health data anytime and anywhere. For its pioneering approach of providing open access to patient data, *sundhed.dk*'s project serves as a benchmark in the field of e-health around the world. *Sundhed.dk* is currently the largest e-health portal in Europe and a trailblazer of the digitalisation.

Danish national health portal for patient empowerment and transparency by Morten Elbæk Petersen

Denmark is characterized by a trust-based culture with a population expecting openness and transparency and that health is a personal matter. Confidentiality in open access to data is high and citizens generally rely on the public authorities and their handling of personal clinical data.

That's one of the reasons that the number of unique visitors to the national public owned eHealth portal in Denmark *sundhed.dk* keep increasing and by 2017 *sundhed.dk* has 1.5 million unique visitors per month out of a population of 5.6 million inhabitants.

Sundhed.dk is providing health information and access to personal health data for citizens and health professionals.

Sundhed.dk was established in 2003 as part of an overall national strategy and is funded by the regions, the municipalities and the ministry of health through taxes. *Sundhed.dk* builds on the idea of “one access point”, re-using and showing information and data that is already produced in the health care sectors ordinary workflows.

Right from the beginning *sundhed.dk* has played an important role supporting the general practitioners in their gate keeping function: To keep citizens out from the hospitals, focus on prevention and treatment at home. Actually this is the economic idea behind *sundhed.dk*.

All Danish citizens from 15 years and above can log on to “My Health” with a digital signature in combination with the social security number.

Information and data can be accessed 24 hours from all platforms and devices.

“My health” gives access to ones' personal health data: Personal medicine overview, notes from Electronic Health Records from hospitals, lab responses, vaccination data and historical overview of treatments (back to 1977). One can also give authorization to a relative or other trusted person to access their personal data. This empowers family members to help kids or an elderly parent with a medical overview, last visit at hospital and further on.

This makes *sundhed.dk* a tool to support patient empowerment making citizens equal partners in the dialogue with the health care professionals.

Patient empowerment is here to be seen as “Giving back data to the citizens” in Denmark. This is regarded as a natural part of being a responsible citizen in a democratic society: Healthcare is a free and common good (financed by taxes) and is

therefore expected to be used in a proper way to the benefit of the citizens.

Over the last few years there has been a great demand for learning more about the *sundhed.dk* solution, and more than 35 countries from all over the world, EU, WHO and organizations with a focus on health IT want dialogue on the possibility of implementing similar models.

Bringing value is a good starting point when developing eHealth solutions.

The successful implementation of *sundhed.dk* rely on different key factors:

A common, ambitious national eHealth strategy and one coherent, public, funding has been important.

Right from the beginning there has been an obvious aim for *sundhed.dk*: Supporting patient empowerment and the workflows of health professionals, especially the general practitioner. This also has an important economic perspective.

Sundhed.dk offers ‘one access point’ showing and re-using data from local systems. *Sundhed.dk* does not generate, collect or store data. And *sundhed.dk* is ‘just’ an offer which is known by 3.3 million Danes out of a population of 5.6 million inhabitants.

Last key factor worth mentioning is the trust-based culture in Denmark and the confidence in open access to personal data - as already mentioned.

When *sundhed.dk* was realized fifteen years ago it happened stepwise within a ‘silent revolution’ nearly without debate in public or in the parliament.

Countries inspired by *sundhed.dk* is recommended to put on the political agenda the advantages of ‘giving back data to the citizens’ highlighting that re-use of data and transparency strengthen the role of the patient, improve the quality of medical care and contribute to a more efficient health care sector.

Adjustments of the legislation to handle access to personal health data in a legal and secure way is to be expected.



Morten Elbæk Petersen, CEO of *sundhed.dk*, presenting the Danish e-health Portal

Data protection must have highest priority among decision makers and in the communication to the public to build up transparency and trust.

Another recommendation is a stepwise approach implementing the solutions. Encourage small pilot projects and let them evolve in their local, innovative settings in different parts of the country in cooperation between health professionals, users and the administrative level.

Be prepared for challenging debates in general and regarding data security, associations of healthcare professionals and so on. Do not step aside for arguments wanting to keep the valuable health data as a secret – and do not reinvent the wheel. Instead keep a pragmatic approach and not wait for technical millenniums. The technical solution might be the easiest part of digitalization.

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Prof Alison Holmes is Professor for Infectious Diseases at *Imperial College London*, where she heads a multidisciplinary research programme. She is an expert in antimicrobial resistance and hospital infections. A focus of her research is the prudent and rational use of antibiotics. Alison Holmes is interested in innovations in behaviour change and is an advocate for considering human behaviour and strengthening the implementation of social science insights in order to address infection prevention and antibiotic use.

The importance of considering the role of human behaviour in the global activities to fight antibiotic resistance
by Prof Alison Holmes

Acknowledging the role of human behaviour is central to addressing the challenge of antibiotic resistance.

Although an increasing international focus on developing new antibiotics is much welcomed, addressing human behaviour will be key to maintaining the effectiveness of any future agents, as well as preserving our existing ones. Effective treatment of infection needs to be optimised and unnecessary antibiotic exposure avoided and behaviour related to the extensive and inappropriate

antibiotic use across healthcare and agriculture needs to be considered. Here we will focus on healthcare, particularly hospital care where individuals are most vulnerable and where AMR and antibiotic usage is most intense, yet an estimated 30- 60 % of hospital antibiotic prescribing is inappropriate or unnecessary. Therefore improving hospital prescribing should be a major focus for behaviour change. Another focus within hospitals should be infection prevention behaviours, such as hand hygiene, as these are critical in preventing transmission of antibiotic resistance and healthcare associated infection, that drives further antibiotic prescribing.

It needs noting that even in hospitals where there may be committed expertise and excellent policies, the influence on overall antibiotic prescribing may be limited by a lack of strategic input and lack of integration with governance structures. ‘Top down’ approaches such as organisational structures and regulation, are helpful but still may not shift attitudes or bring about adequate or sustainable behaviour change in antibiotic prescribing. So, whilst of course there needs to be public engagement to change societal attitudes and behaviours related to antibiotic use, healthcare itself must get its own house in order.

Antibiotic prescribing must be recognised as a ‘behaviour’, that is a complex, dynamic social process, influenced by many determinants. Important ‘unwritten rules’ in hospitals influence prescribing behaviours and clinical autonomy and hierarchies within clinical specialties can overrule policies, guidelines and expert input. Greater involvement of clinical leaders and cross specialty engagement within healthcare is needed. This is emphasised in international medical conferences, where there is little evidence that antibiotic use and resistance is considered outside the specialties of infectious diseases and microbiology, even in those specialties with heavy usage, high risk patients and a dependence on antibiotics. This gap is also reflected in education and training programmes.

Successful healthcare improvement interventions, in the wider patient safety agenda, highlighted the importance of redefining a challenge as a ‘social’ problem that can be solved through shared human action and behaviour, i.e. not simply through



Prof Alison Holmes from Imperial College London explaining the necessity of an appropriate use of antibiotics in hospitals

technical fixes. Success depends on teams, networks and the sense of community. So, when considering improving antibiotic use in healthcare, is enough being done to develop this as a shared goal across the healthcare workforce? There is great untapped potential in the nursing and pharmacy workforce. The role of the clinical pharmacist is already recognised as a key team member in addressing antibiotic use in North America, UK and Australia and effective networks have been developed, for example in South Africa and Thailand. The role of nurses, the largest workforce in healthcare and one of the largest workforces in society, is yet to be developed adequately, although there are some excellent examples emerging and there is also much that can be learnt from established networks addressing HIV and TB.

Technology offers increasing opportunities to change behaviour. Improved surveillance and rapid feedback allows better decision making. *Mobile Health* and the use of Apps also provides

leapfrogging technological solutions. Integrated data and information at the point of care improves decisions and interaction, and decision support systems, careful use of artificial intelligence, rapid diagnostics, data visualisation and risk prediction can potentially improve prescribing behaviour. The power of social media, the use of games and online learning could all have roles in changing attitudes, awareness and behaviour.

To conclude, given that antibiotic use is shaped by social, behavioural and contextual factors, interventions as well as research must consider these. The goal of protecting antibiotics needs to be particularly shared within and across the healthcare community, supported by collective international learning regarding effective networks and models. This goal also needs to be embedded in healthcare management and policy. Governance structures must be aligned to support this. Antibiotic prescribing practice needs to be considered as an example of quality of care, with behaviour change at its centre.

A fundamentally new relationship with antibiotics is needed now to ensure their protection as a critical and precious resource.

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Dr John H. Amuasi is the Executive Director of the *African Research Network for Neglected Tropical Diseases (ARNTD)*, headquartered in Kumasi, Ghana. The Network's mission is to support evidence-based control and elimination of Neglected Tropical Diseases in Africa by empowering current and future generations of African researchers. John H. Amuasi is driven by the vision of an African continent free of Neglected Tropical Diseases, which affect mainly the poor.

Fighting Neglected Tropical Diseases: An approach to meeting the Sustainable Development Goals by Dr John H. Amuasi

Where does Africa stand when it comes to fighting NTDs?

Neglected Tropical Diseases (NTDs) attack individuals, families and societies from multiple angles with lethal cumulative social and economic effects. NTDs have common social determinants such as poverty; with no access to healthcare and poor living conditions, in close proximity with domestic animals and vectors. While Africa is

firmly committed to the fight against NTDs, the complex nature of these diseases, is what in order to address, calls for a concerted effort involving multiple actions from multiple stakeholders at multiple levels ranging from international to community level. NTD country programmes need to continue being supported to ensure they are embedded in the objective of Universal Health Coverage, because their success is a measure of how much we value equity and human rights, the need for access to treatment and prevention and the strengthening of health systems capacity.

Which approaches have proven to be successful?

Cooperation among G7 countries and African governments, along with increased commitment from the pharmaceutical sector, have led to successes, including about 1 billion annual treatments using preventive chemotherapy strategies being made available; 16 countries and counting being certified as free from Guinea Worm transmission; and barely 3,000 cases of Human African trypanosomiasis being recorded in 2015. We have also seen the rise of various product development partnerships, which among other things have pursued non-exclusive agreements with pharma, and have been able to access and screen large compound libraries to identify compounds that have revolutionized treatment for diseases such as visceral leishmaniasis, trypanosomiasis etc.



Dr John H. Amuasi, executive director of ARNTD, talking about research to eliminate NTDs

What is the potential of multidisciplinary research?

NTDs are not “a disease” but a “constellation of diseases”. As such they can be directly linked to the three other topics discussed at the third International German Forum, which highlights the potential that multidisciplinary research could offer.

If appropriate point-of-care diagnostics were widely available, several NTD sufferers would avoid receiving unnecessary antibiotics, and would contribute to slowing down the spread of antimicrobial resistance. Several NTDs have also been shown to directly impact on the mental health of individuals, care-givers and families. A single NTD such as cysticercosis has been shown to account for up to 30% of epilepsy cases in developing countries. NTD patients’ data could be applied to remote sensing technologies and mobile/smart-phone technologies for use in disease mapping for informing NTD control and elimination activities.

How could international cooperation on NTDs look like in the future?

Research has shown that spending on NTD investments is amongst the most cost effective and value for money investments in health which addresses equity, human rights and improvement in quality of life. Yet less barely over 0.5% of official development assistance for health is provided to NTDs affecting more than 1 billion people! This needs to change.

I recommend greater support for DZIF (the German Center for Infectious diseases) to focus more specifically on research collaborations in Africa on both NTDs and emerging infectious diseases, as has been suggested by Minister Helge Braun and Bundestag member Stephan Albani. Presently there is not enough international governmental-level support for specific research capacity strengthening activities such as the *African Research Network for Neglected Tropical Diseases* which I lead. European foundations like the Volkswagen Foundation have supported the training of African NTD researchers using north-south and south-south collaborations. But there remain serious gaps, which call for innovative

financing mechanisms which mirror the successes of UNITAID (the air-ticket levy), which diseases like HIV/AIDS, TB and malaria have benefited greatly from. I would suggest for example a matching fund scheme for various NTD activities which stakeholders could use as a tool to woo both African philanthropists and governments to contribute more to the fight against NTDs.

Coupling or synergizing efforts at tackling NTDs with efforts at becoming more resilient in responding to emerging infectious disease emergencies is another huge opportunity we have post-the Ebola crisis. It is worth noting that during the Ebola crisis, it was NTD community health workers, who were in some cases the only link between service delivery systems and the affected communities.

NTDs not only receive explicit mention in SDG3, but are indeed a two-way “litmus test” of progress to other SDG targets (Water and sanitation, Education, Environment/Climate, Partnerships, one-health). Progress in many areas of development identified in the SDGs require attention to, or are central to alleviating poverty, and will impact positively on reaching our NTD targets.

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Prof Vikram Patel is a psychiatrist and renowned researcher dedicated to promoting global mental health. He co-founded the *Centre for Global Mental Health* at the *London School of Hygiene and Tropical Medicine (LSHTM)* with the mission to close the treatment gap in low resource settings. Vikram Patel is the founding Co-Director of the *Centre for Control of Chronic Conditions* at the *Public Health Foundation of India* and a member of the policy group which drafted India’s first national mental health policy in 2014.

Mental health in the era of sustainable development by Prof Vikram Patel

Mental health problems comprise a very wide range of conditions, ranging from autism and intellectual disability in childhood through to depression, schizophrenia, bipolar disorder, alcohol and drug use disorders in adulthood, and to dementia in old age. Every person would



Prof Vikram Patel, psychiatrist from India, works to remove taboos and stigma.

know someone in their most intimate circles who is affected. It is, therefore, not surprising that surveys show that one in four persons will be affected by a mental health condition during their lifetime; if anything, this might even be an underestimate. Indeed, mental health problems are amongst the leading causes of the Global Burden of Disease, and their share of this burden is rising dramatically. People affected by mental health problems endure much of their suffering in silence, with little compassion from others and, often, outright discrimination. Many will suffer other chronic diseases and die prematurely, both because of poor quality medical care and suicide. Indeed, there is no health without mental health.

In spite of this enormous global burden, as far as mental health is concerned, no country can be considered to be “developed”. There are two reasons for this: first, the amount of resources that countries are committing to mental health care in

their health budgets is proportionately much less than the actual burden; second, very few people globally have access to community based mental health care which incorporates principles of evidence based medicine as well as the rights to a life with dignity. Even in a middle-income country like India, which is self-sufficient in terms of the production of doctors and medicines, the treatment gap for mental health problems in rural areas approaches 100 percent. In many countries, mental health care is synonymous with receiving only pills or with being incarcerated in an institution (including prisons) where basic human rights are violated.

There are two major reasons why the world neglects mental health problems. The first is a range of demand-side barriers, for example, there is generally low demand for mental health care because governments and communities do not

believe these are “real” health problems, or may think that these problems are brought on by one’s own behavior or choices and so the affected individual is responsible for their own recovery. There is also a lack of understanding about the existence of effective and affordable treatments. On the supply-side, we face the barrier of not enough resources, especially trained human personnel to deliver mental health care and reliable supply of generic psychotropic medication.

I would like to suggest four critical actions which governments and civil society can take as an immediate priority. First, we need to act towards preventing mental health problems building on the knowledge that the brain is extremely responsive to environmental factors particularly in the first two decades of life and that most mental health problems begin before young adulthood. Thus, in order to prevent mental health problems, we need to act early, primarily by ensuring nurturing and safe environments for children and adolescents to thrive in schools, at home and in communities.

Second, for people who already are living with a mental health problem, we must move away from hospital based models of care and promote the use of community health workers, peers and other non-specialist frontline workers to deliver mental health care, in particular psychosocial interventions. This is one of the most innovative advances emerging from the developing world. We also need to use technology in intelligent ways. The *Mental Health Innovation Network* (www.mhinnovation.net) is a resource which already documents more than 150 such innovations around the world.

Third, we need to recognize mental health as a basic human right. From a social justice perspective, we need to especially protect this right in two groups of people: those who are vulnerable to develop mental health problems because of social factors, for example refugees or children who have been neglected; and people who live in institutions, including mental hospitals and prisons.

Finally, we need to encourage a more open conversation about mental health. On April 7, 2017, World Health Day will focus on the subject of depression with the theme “Let’s Talk”. Indeed, it is only through disclosure and frank conversation that the stigma will ultimately be overturned. As a society, we should support people living with mental health problems to speak out, to share their stories of struggle and of recovery and to shout for action, because we have all waited far too long for some action to happen. In India, on April 7, we will launch the “it’s OK to talk” initiative targeting young people to share their personal stories using songs, photographs, poetry or an essay (www.itsoktotalk.in).

In conclusion, we must not only celebrate the fact that mental health finds its place in the Sustainable Development Goals, but also now act in measurable and specific ways to promote mental health, and prevent and care, for there is no sustainable development without mental health.



Federal Chancellor Dr Angela Merkel discussing global health issues with the 120 participants.

Discussion with all participants

In the further course, the Federal Chancellor discussed with the participants about ideas and solutions which could improve global health and be used to jointly overcome challenges.

Addressing the topic of mental health was a central part of the discussion. Many participants stressed that mental and physical health should no longer be seen as separate from one another – rather, mental health had to be taken into consideration in all topics relating to health. Combatting stigmatisation and promoting mental health were tasks for all of society, in which the private sector should also be involved and for which the government should set a good example: “*Mental health is the biggest single source of misery in our society*”, pointed out **Prof Richard Layard** (Lord Layard of Highgate) from the *London School of Economics*.

He highlighted the economic costs of mental illnesses, which affected people of working age in particular. “*States lose tax revenue from people who are no longer able to work.*” This had an impact on the costs of the health system. It was important to point out that treating mental illness brought economic benefits, too. **Dr Werner Kissling** from the *Technical University of Munich* also spoke out in favour of better mental health promotion in the workplace. His call was: “*Help us to advocate for this topic to cease being an esoteric peripheral issue, but an important issue regarding the efficiency and costs of companies and authorities.*” **Louise Bradley** from the *Mental Health Commission of Canada* called for the prospects of the people affected to feature more prominently in discussions and shared Canada’s experiences: “*We have coined the phrase ‘Nothing About Us Without Us’. We involve people with lived experience.*”

Dr Shekhar Saxena from the WHO recalled the action plan on promoting mental health adopted by the WHO Member States, for which no country had yet taken leadership. When it came to the topic of mental health, all countries were “*developing countries*”, so industrialised countries could also learn from the experiences of middle and low-income countries.

Mirai Chatterjee from the Indian *Self Employed Women’s Association (SEWA)* advocated a more holistic approach to promoting health and referred to social determinants of health. Reliable provision of childcare, for example, had a positive effect on the wellbeing of women and their participation in professional life. **Dr Julie Jacobson** from the *Bill & Melinda Gates Foundation* noted the importance of cross-sector cooperation in the field of health, explaining that poor water and sanitation supplies played a key role in the spread of neglected tropical diseases. Therefore, development cooperation could achieve an even greater impact using the same resources if it were, for instance, to combine programmes to improve the sanitary conditions with programmes to combat these diseases in a more targeted manner. **Bright Simons** from the *mPedigree Network* called for development cooperation to do more to promote innovative, local-level approaches, stating that this would boost awareness on the ground and deal with problems more effectively.

Many participants heavily stressed the importance of health and the prevention of health crises occupying a permanent place on the political agenda. **Katri Kemppainen-Bertram** from *Save the Children Deutschland e.V.* stressed that strong health systems were crucial to avoiding health crises. As a member of the UN Secretary-General’s *Global Health Crises Task Force*, **Prof Ilona Kickbusch** clearly voiced the high expectations placed in Germany: “*In the international community, Germany is viewed as having an important role in the global discussion about health, perhaps more so than people in the country realise.*”

Prof Ramanan Laxminarayan from the *Center for Disease Dynamics, Economics & Policy* proposed that Germany takes on a leading role in the conservation of antibiotic effectiveness. The problem of antibiotic resistance forcibly connected all countries, he said, adding that developing new antibiotics was only part of the solution. “*What we can do today is change people’s minds*”, he said and stated that every five-year-old should know that antibiotics have to be used with care. He cited smoking as an example of successful behavioural change: “*30 years ago everyone in this room would have been smoking, but today nobody is smoking, because we know how harmful it is.*” Societies needed to take the same view of the proper use of antibiotics.

In her closing remarks, the Federal Chancellor addressed several aspects of the discussion. Merkel made it clear that we had to be “*much more careful*” in our use of antibiotics. “*In our country we sometimes act as if we were somehow legally entitled to antibiotic prescriptions: if my doctor wants me to get better, he’ll prescribe me antibiotics.*” But antibiotics should be given as a last resort rather than automatic first response. Following on from Germany’s 2015 Presidency of the G7, the topic of antibiotic resistance will once again feature as a focal topic at the G20 Summit, which will also tackle the important topic of the use of antibiotics in agriculture.

The Federal Chancellor also held action for necessary in the field of mental health. “*Indeed, when it comes to this topic we are all developing countries.*” This was something that needed to be dealt with, she added, particularly given that physical and mental illnesses were closely linked. “*In this regard, we have been given a further task, which we have to tackle throughout the healthcare sector. We must seek allies, for Germany neither wants nor is able to do it all alone.*” Of further interest to Merkel was the concept of connecting classic psychiatric and psychological approaches with community health approaches, which is most prevalently used in emerging and developing countries.



Discussion at the third International German Forum

With regard to combatting pandemics, the Federal Chancellor highlighted the need for functioning logistical and reporting systems: *“In cases of pandemics, we need a chain like that of national fire services.”* She considered joint, internationally practised disaster response to be *“essential, because people will be much more open to globalisation if they know that they are protected from certain risks than if they see everyone reverting to the national level.”* A further central approach, in her view, was a means of insuring against pandemics: this could mitigate the often devastating impact on the economy or tourism industry of the regions affected.

In conclusion, the Federal Chancellor thanked all participants for the discussion and their ideas. From the discussion she would also take impulses to the 2017 G20 summit in Hamburg, she said. At the International German Forum, the German Government seeks to learn from the world and share experiences. The Forum was *“a good preparatory step”* in getting to grips with matters, formulating policies and bringing them to the political level, summed up the Federal Chancellor.

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