Abstract:

Global health in an open world requires an open mind

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Science does not exist in vacuum and science does not have a life of its own. Science has a history and has always been part of history. Science does not believe in creationism. Or does it? Global health science seems to be wondering about in its own echo chamber biting its own tail repeatedly trying to recreate itself regardless of its own history and ignoring the real world context of global health.

It took 186 years from the discovery of the Smallpox vaccine to the eradication of the disease; it took only 20 years from the onset of the global HIV epidemic to create a global HIV disaster caused by ignorance, negligence, political correctness, religious considerations and lobbying, epidemic stigma and counterproductive politically governed control measures. Governments have had to interpose themselves into controversies of sex, injected drugs, and other taboos in public media. Even the WHO has had trouble confronting such realities. The slow and inadequate international response to HIV/AIDS may have accelerated the epidemic and made it more severe. And some have argued that over-emphasized individual rights against public good, was not the best approach for Africa, as Africa's society is based on community/group understandings and is not as individualistic as the European or North American societies. The timing of the HIV/AIDS epidemic is also an ignored historic fact. In addition, combating AIDS requires costly change in economies and national cultures. The concurrence of the HIV epidemic with the collapse of the hospital care system in Africa contributed to the disaster and later famines in southern Africa in 2001-2003 and the explosion in food prices in 2009 have sparked a second HIV epidemic – this time among single mothers striving to pay newly imposed school fees and user fees for simple health care [1, 2]. Some are waiting for the vaccine "fix" or the wonder drug for HIV – but given the history of Smallpox it will probably take 186 years from now if the world doesn't open its mind both to history and to reality. AIDS is not a fashionable subject anymore but the story of HIV/AIDS is a lesson to global health decision makers. Rephrasing Elisabeth Pisani: whores have wisdom, and we had better open our minds and face it [3].

But why global health? Well, health has never been more clearly global than now. Social media have reorganized our way of talking, discussing and interacting globally by spreading happiness, hate speech, obesity and knowledge at the same time. Diseases have never had respect for border control. Polio has suddenly re-emerged in Syria, measles is popping up all over Europe, West Nile fever came from Uganda to USA and is raging in Texas, Dengue and yellow fever threatens to spread to new areas of Europe and the southern states of USA, patients with extremely drug resistant TB have been travelling freely across Europe and the Atlantic ocean within 8 hours, epidemics of diabetes are seen in China, India, Africa and among the poor in Europe and the US and antibiotic resistance is caused by the food industry and spread by humans and food. But looking at the causes behind the current resurgence of polio in Israel, Britain, Eastern Europe and Nigeria there are quite unique and independent global causes to this viral proxy for chaos: The Israeli strain came from Egypt that got it from Pakistan, in Nigeria it is caused by Muslim groups in the North that reject child vaccinations, while Eastern Europe faces the consequences of a collapsing health care system

combined with a heavy migration load. But digging deeper into the Nigerian Polio dilemma the immunization crisis is best understood after considering developments in the broader politico-religious contexts, both local and global. The controversy as a whole should be understood against the background of the deepening interface between health and politics. In that view the crisis is best seen as originating from a lack of trust in social interaction between ordinary citizens and the Nigerian state on the one hand, and between the same citizens and international health agencies and pharmaceutical companies on the other. The analysis of trust shows that it is a historically embedded crises and illuminates the historical dynamics of relations among the identified actors – not just Muslims rejecting immunization[4]. Some global threats spread by the means of mosquitoes, parasites and viruses, others by transmitting genetic resistance and yet others spread by behavior and living conditions. We have never been a more connected globe, for better and for worse. We can learn from these tendencies if we can see these disease outbreaks in context – as not so much isolated risks we can 'contain' but as symptoms of an ever-changing, ever challenged, system. The interesting point is that global health lessons have always been there – history can teach us how to tackle global health – but our failure to take existing experience into account has made us reinvent the global health wheel once a year.

To understand global health and the potentials for solutions to world health problems we need to understand the basics of health, health care and decision making in global health. We also need to understand that major players in global health, such as social determinants of health, are not taken serious. But social determinants of health are like a 600 pound gorilla in the room: it fills out the global health space and it keeps staring at us while we can't figure out how and when it is going to attack us. An open mind is useful in global health where global cognitive short cuts, convenient moral codes, shifting fashions in politics, vague national security arguments and a million religious minority interests so far have taken over where common sense, scientific facts and principles of equity were in fact initially in command. Global health discussions were open minded and innovative in the years up to the Millenium Development Goals for 2015 and retained an innovative momentum up to 2008 when the Global Forum for Health died out. The scene was taken over by large independent donors, The World Bank and large international NGOs and cross disciplinarity, equity, innovation and research based interventions vanished from the scene. The analysis of the abolishment of one of the top 5 killers in low income countries, user fees, is a painful but necessary example of admitting that history can help us improve future global health intervention if we test what we want to do before we introduce it on a global scale [5].

The diversity and scope of global health is rapidly expanding. From evolving individualized personalized medicine based on genetics over epigenetics claiming that a grandmothers birth weight determines the grand children's birth weight, to an epidemic of female obesity in exploding cities of low income countries and to deadly epidemics of measles because there is no funding for that particular vaccine or polio epidemics because religious groups and minorities in Africa, Asia and Europe, for different reasons, refuse to have their children vaccinated.

Increased concern about global health has focused attention on governance questions, and calls for new governance architecture for global health have appeared. Global health diplomacy is a relatively new field in global health. Health has emerged as an important foreign policy issue but has at the same time de-masked that health was previously deliberately separated from foreign policy – instead health was seen as something between charity and an international moral necessity. Global health threats have forced foreign

policy makers to re-think how they see national security threats. Nowhere is this more visible than in the relationship between public health and national security. Whether discussing biological terrorism, HIV/AIDS or pandemic influenza, foreign policy makers and public health experts have increasingly outlined certain health threats as security challenges. Without question, the major powers of the international system have driven this process with their national interests in mind, which worries many of those involved in protecting and promoting health [6]. Some governments have taken determined steps to incorporate health as a foreign policy tool. But maybe it's the opposite that is happening as Illona Kickbusch noted in 2007: foreign policy is now being driven substantially by health to protect national security, free trade and economic advancement [7]. The world of global health diplomacy is quite dynamic at the moment, with new partners setting trends while traditional actors are re-configuring their views and practices [8]. A whole range of middle income countries recently emerged from a low income situation and they have, with individual backgrounds and different goals, entered the global health scene. Some of these countries have very recent experiences in receiving foreign aid and now find themselves on the other side of the table. Some of these countries (Such as Mexico, Brazil or South Korea) challenge the good old boys around the table disrupting their "old school" thinking. Furthermore each of the newcomers have developed their own "middle power" focuses on global health, often filling some of the huge gaps that the old donor countries have left in global health.

Global health management faces a new problem, by Fidler called "open-source anarchy." The forces of open-source anarchy means that States, NGOs and large donors resist global power structure reforms that would limit their freedom of action. Gates foundation for example scores very poor on the aid transparency index 2013 [9]. In this context, what is emerging is not governance architecture but a normative "source code" that States, international organizations, and non-State actors apply in addressing global health problems. The source code's application reveals deficiencies in national public health governance capabilities, deficiencies that are difficult to address in conditions of open-source anarchy. Governance initiatives on global health are therefore disclosed as weak, powerless and vulnerable [10]. The

Unwillingly we have introduced inequity in global health because one of the key elements is to work for equal global access to new research and technologies. By doing this instead of focusing on what is really needed we have forced low income countries without resources for scientific evaluation to expand the topics they have to deal with instead of assisting in solving the topics they are already struggling with.

Furthermore a range of the interventions that high income countries, often for selfish reasons, have imposed on LIC have had serious long term repercussions. User fees, immunization campaigns with no - or harmful effects, decentralization, withdrawing funding for health care and replacing it with administrative funding all have had unexpected and disrupting long term effects[11]. Now international donors have drawn the carpet under many health programs by suddenly defining circumcision of men or HPV vaccination of girls as the new large scale interventions together while at the same time only 40 % of HIV positives in LIC cities are on anti-retroviral therapy for their HIV infection (nobody wants data from non-urban areas) and condoms are never to be found in the right place at the right time, even though the condom was invented in 1564 over 400 years ago [12]. The narrow and exclusive focus on investments in Primary Health Care in LIC from 1980 has left complete health care systems without functional referral levels above health centers because of a chronically underfinanced hence collapsed hospital sector and has left the bill to be paid by the poorest patients in most need of public hospital care [13]. So now the

international community is forced to invest in hospitals that essentially aren't really functional hospitals anymore– but we, the high income countries – actually created that problem ourselves [14]. An often ignored historic fact is that the HIV epidemic spread most rapidly in the 1990s when Africa suffered an economic decline, when the health care services were falling apart (partly due to Structural Adjustment Programs of the World Bank) and when attention by health officials was on other health priorities such as Unicef's Extended Program of Immunization (EPI).

During the past decade, the explosion in global health activities by governments, international institutions, multinational corporations and nongovernmental organizations is extraordinary and shows the conversion of health as a national and global political struggle [15]. Commentators have, however, begun to warn of the adverse implications of so many players engaging in so many health efforts in so many parts of the world. All this activity is producing what can be called two tragedies of the global health commons. This dynamic is producing a global health version of the "tragedy of the commons" as actors' rational, self-interested calculations generate over-exploitation of the global health commons[16]. Critical parts of the global health commons, particularly developing and least-developed countries, cannot adequately support the ongoing proliferation of activities, which tend to fragment already fragile local and national capacities for public health and health care.

But the global health commons experiences as well the tragedy of under-exploitation. Critical health issues such as women's health, the global spread of non-communicable diseases and the building of broad-based local and national public health capacities, receive insufficient attention and suffer from the fragmentation of public health and health-care systems caused by proliferating yet uncoordinated public and private health initiatives. In fact WHO in a report from 2013 WHO highlighted violence against women as a 'global health problem of epidemic proportions' – yet no global measures to control the epidemic were launched. Examples of other unsolved controversies and disputes in global health are:

- Falsified, Substandard and Counterfeit Medicines: Public health or intellectual property rights issues? Counterfeit, falsified and substandard medicines pose a considerable threat to health security. They can fail to cure, promote antimicrobial resistance or cause injury and death. The threat posed by such medicines is growing, particularly in poorer countries with weak regulatory mechanisms and poorly monitored distribution networks. Poor patients in developing countries, who usually have to procure medicines with their own resources, are particularly vulnerable.
- Corruption in health care is a serious threat to health governance, undermining quality and availability of services, especially for the poor. Although no country is immune, citizens in poorer countries are more likely to experience corruption when they interact with public officials, and the effects of corruption on their health and welfare are exacerbated.
- With more than a billion smokers worldwide, tobacco is mankind's most widespread serious health hazard, and among its most contagious. It is therefore quite naturally that the tobacco industry is often compared to an infectious disease vector. The tobacco industries manipulate scientific evidence on the risks of tobacco and undermine research findings
- Controversies in migration and international health. There are over 12 million undocumented migrants in the world. Their right to human rights is challenged and their access to health care has been hampered by failure to accept their existence while at the same time countries depend on their labour.

- Food companies have contributed to the development of a food system that now provides adequate and safe food to billions of people worldwide. However nutrition crises related to over- and under- nutrition and exploding food prices remain common and urbanization is closely related to changes in eating patterns and physical activity.
- Uncontrolled and rapid urbanization creates breeding grounds for poverty, diseases of poverty, break down of public administration, lack of schools and sanitation, human insecurity and rapid increases in non-communicable diseases. This was not a development that started yesterday but decision makers have failed to monitor, accept and act on the epidemic of urbanization.
- Humanitarian Action- Security and Military intervention: Humanitarian interventions are increasingly politicized and militarized. The deteriorated security situation for humanitarian workers in many crisis zones, as well as the political discussions about terrorism and counter terrorism strategies developed after 9/11 (the Global War on Terror), have led to increasing militarization of many humanitarian fields. Militarization of aid as well as counter-terrorist interventions backed with humanitarian activities in order to win the "hearts and minds" of the population has contributed to blurring the lines between combatants and non-combatants. These developments have had considerable impact on the ability of humanitarian organizations to genuinely provide aid to populations in dire need, within a strictly humanitarian assistance framework. In addition, aid recipients' perception of humanitarian actors has been affected.
- Single disease funding. General Health System Management in the Context of PEPFAR and the Global Fund Overview: Alignment/coordination of resource flows to maintain efficiency and support for PHC services. Major investments being made through international grant making mechanisms such as PEPFAR, PMI, GFATM, GAVI that, in some circumstances, can create distortions and coordination problems in managing human and material resource flows to assure broad access to an integrated package of health services. If half of a financial resource flow for health in a country is focused on HIV/AIDS, how can the policy leaders assure that the whole health system is re-inforced. Plenty of global health experts think that fighting a single disease is inefficient. It doesn't build the capacity of the health system as a whole, and it can distort the entire health sector. Health care providers and services are pulled into the area where there is money. If all your doctors are treating tuberculosis, who takes care of the children with pneumonia?

So to re-invent global health we have to re-analyze and learn from global history:

OBSERVATION	**CONSEQUENCES and IMPLICATIONS**
Getting history right	
Global health interventions are never really tested yet introduced at global level with unexpected and uncontrolled health effects	The following is examples of interventions with geographically limited or no evidence before introduction: decentralization and privatization of health care, user fees, childhood immunizations, male circumcision, Vertical ARV programs and their vulnerable funding structure
Governments, ministries, organizations have no memory and don't collect experience systematically	The very organization that introduced and forced user fees to be introduced in LIC was the organization to take credit for "saving" LIC from the effects of user fees by introducing a new program

	to replace it: “Universal health coverage”. This program still hasn’t demonstrated that I can increase equity while user fees have now become a “right” for health workers and way of supplementing their often missing salary payments
Diseases and health problems lose their international X-factor regardless of importance. Some interventions are just too boring and simple	Diseases like diarrhea and measles their solutions (soap and immunization) are tedious and have been around for so long that politicians think they are almost eradicated. Traffic accidents, among the top 5 causes of death worldwide has no sex appeal and no attraction in terms of a solution.
Global health does not exist in a vacuum	It was not science alone that discouraged smoking by providing evidence for the risk of lung cancer. It took over 7,000 studies, all showing the same association, and 20 years of time, before decision makers in health dared to say in public that smoking causes cancer.
Getting the picture right	
Issues of wealthy NGOs, ethics, gender, religion, national security and environmental issues are heard through established institutions, boards and lobby organizations. But issues regarding equity and transparent and sensible agendas for research have no voice. Research priorities and how to secure that good research is implemented into practice has no interest organization behind it any longer.	The global health agenda is biased towards the agendas of wealthy and powerful organizations that do not necessarily feel obliged to follow needs of recipient countries or to listen to scientific evidence. They are not part of a global policy process but define their own goals and means. Decisions regarding child health are made on what funders want to fund, not what really works or what is needed. Polio immunization is a donor darling while measles immunization, treatment of diarrhea and pneumonia is not. Individual or minority human health security is not defended. Research in health disparities interventions tends to be oriented towards the individual and how social determinants and behavioral factors affect the individual. In fact this has spilled over into intervention research where a recent review of 30 years of health disparities research found that 90.5 % of all research has been focused on patient interventions or interventions aimed at the patient’s community. Only 9 % of research was aimed at changing the organization of the health care sector to a more equity based focus or at increasing equity competencies among health care professionals [17]. Favouritism in health care, unofficial user fees, fake drugs and corruption, educational disparity in care are poverty boosters that reinforce the effects of being poor [5, 18, 19]. The clinical outcome of tuberculosis treatment depends on social

	determinants via lower quality of care [20].
The blind spots in global health	
Some diseases and their interventions suffer from "donor fatigue" in spite of their continuing deadly effects on child survival. "Cooperative countries" get more funding – other countries are termed "fragile states". Innovation is increasingly being interpreted as "technological fixes". Problems that are not easily solved are not subject to global health interest. Some problems are simply regarded as too big for global health – or realistically beyond the reach of global control.	What is funded changes on a yearly basis with new policies, new governments and new fashions. Recipient countries are defenseless – if they don't comply they don't get funding or risk depending on compassion, charity or funding for national security reasons instead of for health problems. Research funding has shifted from competence development of health workers to ehealth and mhealth technology. Technology doesn't solve the problems in lacking skills and increasing inequity. If migrants around the world lived in the same country they would be the 5th largest country in the world, yet the fact that migrant populations are vulnerable populations has not led to a global health focus on this immense challenge. Traffic injuries are a result of an activity that is regarded as the ultimate individual freedom, hence a right that ranks above global public health. Being born female is dangerous to your health and is more dangerous than being a soldier at war [21]. International tourism has exploded leaving international health authorities with their hands tied. Not only does it lead to import of tropical diseases to high income countries it also poses a health threat to communities in low income countries through tourist importing news diseases to rural areas[22].
Getting the proportions right	
Reality check: The global health reality is drawn by media, decision makers and donors but does not always match what researchers and the most vulnerable population groups see.	Social media shows social networks we couldn't see before: happiness, overweight, smoking and risk behavior spreads in ways we would never have imagined and further in networks than expected. Loneliness is just as dangerous as smoking 30 cigarettes a day. Children in LIC continue to die from simple preventable and treatable infectious diseases. 91 % of worldwide traffic deaths occur in LIC and constitute the most prevalent cause of death in ages 15-29 years. Half of them are pedestrians and bicyclers. 100 mio people globally fall into extreme irreversible poverty because of illness related expenses imposed on them by doctors and the health care system.
Getting the counting right	
It is not a human right to be counted or to be counted right. It is not a right to have access to	Population groups with low literacy, low numeracy or health literacy are routinely excluded from

research results or that they are put into practice	investigations and research. Hence, they are neither made part of the challenge or the solution to the challenge. Though interventions tend to be most effective among the poorest and with less school education most interventions tend to be based on less poor and more educated. Poor population groups have no voice in global health and are targeted by interventions aimed at groups that have very little benefit from them.
Understanding the mechanics of social determinants	
We have virtually no understanding of-, or research in, the mechanisms by which social determinants and school education affects health and disease.	Recent research has demonstrated that poverty does bad things to your brain: you are less competent in decision making and combining information because the brain is occupied with worries and distress that occupies cognitive resources. Poor people are not just sick because they are poor but because they are 5 times more likely to live in unhealthy and deprived areas. They are five times more likely to be subjected to unofficial fees before treatment. Because of inherent differences in interaction, poor people are sick because health care has less effect among the poorest patients than among less poor. School education makes patients walk longer for help, makes them ask more questions, compliance is increased and they recover more quickly.

Solutions & recommendations

A problem cannot be solved by the same mindset that created it. We therefore need to establish an international body that independently can defend existing sound pro-poor health interventions and be given mandate to reject new interventions until they have provided an evidence base.

The international agency should:

- Record, and promote use of, evidence and experience in global health including historical observations
- Monitor and promote research into practice and protect simple good interventions from shifting fashions in global health
- Protect the most vulnerable population groups from random unpredictable effects of moods, morals and money
- Evaluate and comment on equity issues in existing or new global health interventions
- Work under the idea that: Ideas don't have rights – people do.

Furthermore it is recommended that:

- Research should focus on mechanics of social determinants and school education
- Investments in education to improve empowerment and health behaviour
- Investment in poverty reduction to improve health decision making among the poorest and protect against iatrogenic poverty
- Research on research: how to get the best and most interesting research questions funded and how results are best translated into policy and practice

Conclusions

Global health should be studied the same way we study peacekeeping, global governance and defense management. Pandemic flu won the First World War – there were too many unplanned casualties following the attack from an unexpected enemy for which no sides of the war had effective defense mechanisms. Health has always been a part of "high politics" – but while the flu didn't get much attention for its role in the First World War, HIV, SARS and the recent flu pandemics have wiped away any doubts about the importance of global health in shaping foreign policy, international relations and human security.

International relations have been invaded by a range of health subjects that previously were blind spots: globalization, human rights, social determinants, social media, migration and international law. Women live lives more dangerous than soldiers at war just because they give birth, every year 200 million people end in extreme poverty because of catastrophic health expenditure for their illness, every day 4,500 children die from simple and preventable diseases such as diarrhea while sanitation still receives less than 0,5 % of what is spent on aid in low income countries. All of these deaths and suffering are the result of local and international political decisions. Decisions made contrary to what history has learnt us and contrary to what science tells us.

Most people will agree that health is a human right is vital to good politics and human security, yet States have consistently refused or ignored to include health on the list of basic rights.

An open world has been created by globalization and social media, but politicians and large international donors need to open their minds to the history and science of global health. The 186 years from Smallpox immunization was discovered until the disease was eradicated, is a lesson in global health: science, as health, does not exist in a vacuum and depends deeply on brave sensible politics based on facts and historical evidence.

Today we can control a car driving around on Mars and drones can deliver ordered books directly to you within an hour – why is it then that hand washing, sanitation, maternal-child health and respect for history and scientific evidence is so difficult? Maybe we have complicated matters by allowing global health to be defined and governed by a chaotic group of private donors, large funds and NGOs without regard to what human beings really need to be able to live a normal healthy life.

Most states, even when committed to health as a foreign policy goal, still make decisions primarily on the basis of the 'high politics' of national security and economic material interests. Development, human rights

and ethical/moral arguments for global health support, the traditional 'low politics' of foreign policy, are present in dialogue but do not appear to control practice. While political drive for health as a foreign policy goal persists, the framing of this goal remains a disputed issue.

Narrow minds in an open world are what prevent global health from releasing its full potential among the poorest populations of the world. Homer Simpson shows us just how embarrassing our narrow minds are: "*How come you guys can go to the moon but you can't make my shoes smell good?"* Maybe it is not so difficult after all if we start with the smelly feet problems instead of looking for a fix behind the moon? Condoms were invented in 1564 but still fail to be in the right place at the right time. Global health in an open world requires an open mind….and brave sensible politicians dealing with earthly matters.

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