The Concept of Global Health

Stefano Vella MD
Italian National Institute of Health
Global Burden of Disease

[Map showing the global burden of disease with various risk factors and their attributable DALYs]
Global Burden of Disease

CENTRAL AFRICAN REPUBLIC
MOZAMBIQUE
SOUTH AFRICA
THE RISE OF LIFE EXPECTANCY

Life expectancy globally and by world regions since 1770

Source: Life expectancy – James Riley for data 1990 and earlier; WHO and World Bank for later data (by Max Roser)
THE DRIVERS......1. CLEAN WATER

WORLDWIDE, 1 OUT OF EVERY 5 DEATHS OF CHILDREN UNDER 5 IS DUE TO A WATER-RELATED DISEASE.
THE DRIVERS......2. SOCIAL DETERMINANTS

HEALTH & WELLBEING

- Education
- Equality
- Nutrition
- Demographic change
- Social innovation
- Urban development
- Marketing and advertising
- Physical activity
- Environment
- Agriculture
  - Organic farming
  - Chemistry and pesticides
- Working conditions
- Unemployment
- Gender roles
- Social networks
- Industrialization of food production
General socio-economic, cultural and environmental conditions

Living and working conditions

Work environment

Unemployment

Water and sanitation

Health care services

Housing

Social and community networks

Agriculture and food production

Education

Individual lifestyle factors

Age, sex and constitutional factors
THE DRIVERS......3. ADVANCES OF MEDICINE

1796
What Global Health is not

At least 30 million people die **prematurely** (half of them before the age of 5) in developing countries for lack of adequate access to basic health care. They die for causes that are very often **preventable or treatable**.

Despite the convergence on the concept of health as a human right, there still exist intolerable global inequalities in accessing health and health services and in terms of life expectancy and morbidity and mortality from **communicable and non-communicable diseases**.

The persistence of inequalities in terms of health - **not only between rich and poor countries, but also between different regions in the same country** - is also a contradiction to science, given the growing geographic interdependence of the biomedical causes and of the social determinants of health and diseases.
The unequal rise of «healthy» life expectancy
What Global Health is....not
What Global Health is....not
What Global Health is... not
Figure 1
Adult HIV Prevalence, 2017

Global HIV Prevalence = 0.8%

NOTES: Data are estimates. Prevalence includes adults ages 15-49.
SOURCES: Kaiser Family Foundation, based on UNAIDS, AIDSinfo, Accessed July 2018
What Global Health is not.

Prevalence of hepatitis B infection, adults 19-89 years, 2005

Prevalence of anti-hepatitis C virus

Poor access to HBV vaccine

Poor access to HCV cure


What Global Health is....not

2008 Global HPV-related burden: 607,000 annual cancer cases

- Cervical cancer
- Anal cancer
- Oropharyngeal cancer
- Vulva and Vaginal cancer
- Penile cancer

Genital warts

+ recurrent respiratory papillomatosis

International Agency for Research on Cancer

De Martel et al. 2012 Lancet Oncol (cancers) and Dillner et al. 2010 BMJ (genital warts)
What Global Health is….not
Efficacy and effectiveness of an rVSV-vectored vaccine in preventing Ebola virus disease: final results from the Guinean ring vaccination, open-label, cluster-randomised trial (Ebola Ça Suffit!)

Ann-Maria Hamel-Bertrand, Antonia Camacho, Muriel Le Gris, Cornelis Heisterkamp, John Edmunds, Matthias Egger, Mike Carroll, Nicola Fox, Barbara Gitz, Maurice Dracoulis, Bertrand Drague, Sophie Druillet, Guinly Druan, Rebecca Gras, Stephan Goeth, Pierre-Stéphane Costi, Stéphane Kromers, Sara Hildreth, Maude-Agathe Kadj, Sabine Milla, Stephane Monnet, Cornelis Granja, Byron Le Cointur, Thibaut Mignot, Guillaume Allouni, Khenia Bambam, Alexandre Sarkis, Joeri Taey, Andrea O'Flaherty, John Aarsland Røttingen*, Marie-Pascale Every*

Summary
Background rVSV-ZEBOV is a recombinant, replication-competent vesicular stomatitis virus-based candidate vaccine expressing a surface glycoprotein of Zaire Ebola virus. We tested the effect of rVSV-ZEBOV in preventing Ebola virus disease in contacts and contacts of contacts of recently confirmed cases in Guinea, West Africa.

Methods We did an open-label, cluster-randomised ring vaccination trial (Ebola Ça Suffit) in the communities of Conakry and eight surrounding prefectures in the Fasso-Guiné region of Guinea, and in Tonkolili and Bombali in Sierra Leone. We assessed the efficacy of a single intramuscular dose of rVSV-ZEBOV (2.0×10^7 plaque-forming units) administered in the deltoid muscle in the prevention of laboratory-confirmed Ebola virus disease. After confirmation of a case of Ebola virus disease, we definitively vaccinated on a list a ring (cluster) of all their contacts and contacts of contacts including named contacts and contacts of contacts who were absent at the time of the trial team visit. The list was archived, then we randomly assigned clusters to either immediate vaccination or delayed vaccination (21 days later) of all eligible individuals (ie, those aged ≥18 years and not pregnant, breastfeeding, or severely ill). An independent statistician generated the assignment sequence using block randomisation with random varying blocks, stratified by location (urban v rural) and size of ring (≥20 individuals v>20 individuals). Ebola response teams and laboratory workers were unaware of assignments. After a recommendation by an independent data and safety monitoring board, vaccination was stopped and immediate vaccination was also offered to children aged 4–17 years and all identified rings. The prospectively primary outcome was a laboratory-confirmed case of Ebola virus disease with onset 10 days or more from randomisation. The primary analysis compared the incidence of Ebola virus disease in eligible and vaccinated individuals assigned to immediate vaccination versus eligible contacts and contacts of contacts assigned to delayed vaccination. This trial is registered with the Pan African Clinical Trials Registry, number PACTRI30100003015730.

Findings In the randomised part of the trial we identified 4539 contacts and contacts of contacts in 51 clusters randomly assigned to immediate vaccination (of whom 3532 were eligible, 2231 vaccinated, and 1301 immediately vaccinated) and 4577 contacts and contacts of contacts in 47 clusters randomly assigned to delayed vaccination (of whom 3686 were eligible, 2359 vaccinated, and 2041 vaccinated 21 days after randomisation). No cases of Ebola virus disease occurred 10 days or more after randomisation among randomly assigned contacts and contacts of contacts vaccinated in immediate clusters versus 16 cases (7 clusters affected) among all eligible individuals in delayed clusters. Vaccine efficacy was 100% (95% CI 68–100; p<0.001). The estimated intraclass correlation coefficient was 0.035. Additionally, we defined 19 non-randomised clusters in which we enumerated 2743 contacts and contacts of contacts. 3006 of whom were eligible and 1617 were immediately vaccinated, including 194 children. The evidence from all 117 clusters showed that no cases of Ebola virus disease occurred 10 days or more after randomisation among all immediately vaccinated contacts and contacts of contacts versus 16 cases (7 clusters affected) among all eligible contacts and contacts of contacts in delayed clusters. Vaccine efficacy was 100% (95% CI 79·3–100·0; p<0.001). 52% of contacts and contacts of contacts assigned to immediate vaccination and in non-randomised clusters received the vaccine immediately; vaccination protected both vaccinated and unvaccinated people in those clusters. 3037 individuals in total received the vaccine (5464 adults and 194 children), and all vaccines were followed up for 64 days. 3469 (53·9%) of 6501 individuals reported at least one adverse event reported within 14 days after vaccination; these were typically mild (87·5% of 7213 adverse events). Headache (1832 [25·4%], fatigue (1540 [18·7%]), and muscle pain (942 [11·9%]) were the most commonly reported adverse events in this period across all age groups. 96 serious adverse events were identified, of which two were judged to be
## Potential Viral Pathogens

<table>
<thead>
<tr>
<th>Family</th>
<th>Prototype(s)</th>
<th>Licensed Vaccines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramyxoviridae</td>
<td>Measles, Mumps, Nipah, RSV</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Togaviridae</td>
<td>Rubella, Chikungunya, WEVEE</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Reoviridae</td>
<td>Rotavirus</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Orthomyxoviridae</td>
<td>Influenza A, B</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Adenoviridae</td>
<td>Adenovirus 4, 7, 14</td>
<td>Live-attenuated, whole-inactivated</td>
</tr>
<tr>
<td>Rhabdoviridae</td>
<td>Rabies</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Picornaviridae</td>
<td>Polio 1,2,3, Hepatitis A, EV58, 71</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Papillomaviridae</td>
<td>HPV 6, 11, 16, 18</td>
<td>Live-attenuated, whole-inactivated</td>
</tr>
<tr>
<td>Poxviridae</td>
<td>Variola</td>
<td>VLP</td>
</tr>
<tr>
<td>Hepadnaviridae</td>
<td>Hepatitis B</td>
<td>Live-attenuated</td>
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<tr>
<td>Herpesviridae</td>
<td>Varicella</td>
<td>VLP</td>
</tr>
<tr>
<td>Flaviviridae</td>
<td>Yellow Fever, TBE, JEV, Dengue, Zika</td>
<td>Live-attenuated</td>
</tr>
<tr>
<td>Hepeviridae</td>
<td>Hepatitis E</td>
<td>Live-attenuated, whole-inactivated, Live-chimeric</td>
</tr>
<tr>
<td>Filoviridae</td>
<td>Ebola, Marburg</td>
<td>VLP (China)</td>
</tr>
<tr>
<td>Retroviridae</td>
<td>HIV-1</td>
<td></td>
</tr>
<tr>
<td>Coronaviridae</td>
<td>SARS, MERS</td>
<td></td>
</tr>
<tr>
<td>Paroviridae</td>
<td>B19, Boca</td>
<td></td>
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<tr>
<td>Caliciviridae</td>
<td>Noro</td>
<td></td>
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<tr>
<td>Polyomaviridae</td>
<td>JC, BK</td>
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<tr>
<td>Arenaviridae</td>
<td>Lassa, Machupo</td>
<td></td>
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<tr>
<td>Bunyaviridae</td>
<td>Hanta, Rift Valley</td>
<td></td>
</tr>
<tr>
<td>Astroviridae</td>
<td>Astrovirus</td>
<td></td>
</tr>
</tbody>
</table>

### Choose prototypic viruses within each family or each distinct genus
- Define structures of surface proteins and particles
- Determine extent of genetic variability
- Define tropism, entry mechanisms, receptors
- Study pathogenesis and establish animal models
- Isolate human mAbs and determine mechanisms of NT
- Develop assays for diagnosis and immunogenicity testing
- Define immune correlates of protection
NIPHA VIRUS

The infection, an emerging threat, has killed virtually all of its victims so far in India.

By Emily Bauergarten

June 4, 2008

A rare, brain-damaging virus that experts consider a possible epidemic threat has broken out in the state of Kerala, India, for the first time, infecting at least 18 people and killing 17 of them, according to the World Health Organization.

The Nipah virus naturally resides in fruit bats across South and Southeast Asia, and can spread to humans through contact with the animals’ bodily fluids. There is no vaccine and no cure.

The virus is listed by the W.H.O. as a high priority for research. Current treatment measures are insufficient, according to Dr. Stuart Nichol, the head of the viral special pathogens branch at the Centers for Disease Control and Prevention.
What Global Health is— not
Measles immunization coverage
(% of children ages 12-23 months) (2016)
Measles mortality

Measles
Both sexes, Under 5 years, 2016, Deaths per 100,000
60 percent through 2030. Dramatic improvements are needed to increase coverage and avoid leaving children behind in these settings.

The heatmap shows that even within countries that may be doing well, certain areas can be neglected. More than half of children haven’t received the necessary three doses of DTP in 26 percent of districts in sub-Saharan Africa. The priority now is replicating successful strategies in the most challenging places so that all people everywhere receive lifesaving vaccines.
What Global Health is not
Fig. 3.4
Countries reporting cholera deaths and imported cases, 2016
What Global Health is....not

Probability of dying prematurely from non-communicable diseases

Probability of dying from the four main NCDs* between the ages of 30 and 70
2012, %

- Yellow: <15
- Orange: 15–19
- Red: 20–24
- Dark Red: ≥ 25
- Grey: No data

Source: WHO

*Non-communicable diseases: cardiovascular diseases, cancer, chronic respiratory diseases and diabetes
Mental and substance use disorders as a share of total disease burden, 2016

Mental health and substance use disorders as a share of total disease burden. Disease burden is measured in DALYs (Disability-Adjusted Life Years). DALYs measure total burden of disease, both from years of life lost and years lived with a disability. One DALY equals one lost year of healthy life.

Source: IHME, Global Burden of Disease
Globalization and Health
1. The current version of globalization has delivered economic growth.

2. But at enormous cost: massive environmental destruction, growing lawlessness, rising inequalities.

3. The causes of poor health for millions globally are rooted in political, social and economic injustices.
This graph compares Life Expectancy & GDP per capita for all 185 nations recognized by the U.N.

**Health & Income of Nations in 2015**

**Data Sources:**
- Income: World Bank's GDP per capita, PPP (2011) International.$ Income of China & India are estimated. India was upgraded to create a readable income share scale distance on its income.
- Health: Data from UN Population Division, Life Expectancy, 2012, GDP 2013 Data from World Bank.

**Color by Region**
- Blue: Africa
- Green: Asia
- Red: Europe
- Yellow: Latin America & Caribbean
- Orange: Oceania
- Pink: Middle East

**Size by Population**
- 10 million
- 100 million
- 1 billion

www.gapminder.org

A free fact-based worldview

www.gapminder.org

(a free fact-based worldview)
The Haves and the Have-Nots
Branko Milanovic
A brief and idiosyncratic history of global inequality
Only 1% of people owns 50.4% of the global wealth; 2.4 billion adults own only 1%

ABSOLUTE POVERTY DECLINED; BUT NOT EVERYWHERE

POVERTY

NUMBER OF PEOPLE LIVING AT DIFFERENT POVERTY THRESHOLDS

- $1.90 a day
- $3.20 a day

WORLD

1990: 3.6b
2016: 1.9b

SOUTH ASIA

1990: 0.9b
2016: 0.7b

SUB-SAHARAN AFRICA

1990: 0.6b
2016: 0.4b

SDG Target: Eradicate extreme poverty for all people everywhere.
The poor, the marginalised groups and the vulnerable populations are the most affected by health inequalities.
1.5 billion people live in slums
THE GREAT ESCAPE is a movie about men escaping from a prisoner-of-war camp in World War II. The Great Escape of this book is the story of mankind’s escaping from deprivation and early death, of how people have managed to make their lives better, and led the way for others to follow.
Migrants

Displaced
What Global Health is not

What Global Health actually is
Global Health

• Global health is the health of populations in a global context

• It transcends the perspectives and concerns of individual nations

• Global health is an extensive multisectorial domain that links health with the areas of development, humanitarian aid, and research

• It deals with:
  – worldwide improvement of health
  – reduction of disparities and inequalities, abroad and at home
  – protection against global threats
Global Health: lessons from the HIV/AIDS response
AIDS: a devastating impact in just a few years

40 million died

40 million live with HIV
Trends in Annual Rates of Death from Leading Causes of Death Among Persons 25-44 Years Old, USA

- Unintentional injury
- Cancer
- Heart disease
- Suicide
- HIV infection
- Homicide
- Chronic liver disease
- Stroke
- Diabetes
Antiretroviral Therapy for HIV Infection in 1996

Recommendations of an International Panel

Charles C. J. Carpenter, MD; Margaret A. Fischl, MD; Scott M. Hammer, MD; Martin S. Hirsch, MD; Donna M. Jacobson; David A. Katzenstein, MD; Julio S. G. Montaner, MD; Douglas D. Richman, MD; Michael S. Saag, MD; Robert T. Schooley, MD; Melanie A. Thompson, MD; Stefano Vella, MD; Patrick G. Yeni, MD; Paul A. Volberding, MD; for the International AIDS Society–USA

Objective.—To provide clinical recommendations for antiretroviral therapy for human immunodeficiency virus (HIV) disease with currently (mid 1996) available drugs. When to start therapy, what to start with, when to change, and what to change to were addressed.

Participants.—A 13-member panel representing international expertise in antiretroviral research and HIV patient care was selected by the International AIDS Society–USA.

Evidence.—Available clinical and basic science data, including phase 3 controlled trials, clinical endpoint data, virologic and immunologic endpoint data, interim analyses, studies of HIV pathophysiology, and expert opinions of panel members were considered. Recommendations were limited to drugs available in mid 1996.

Process.—For each question posed, 1 or more member(s) reviewed and presented available data. Recommendations were determined by group consensus (January 1996); revisions as warranted by new data were incorporated by group consensus (February-May 1996).

Conclusions.—Recent data on HIV pathogenesis, methods to determine plasma HIV RNA, clinical trial data, and availability of new drugs point to the need for new approaches to treatment. Therapy is recommended based on CD4+ cell count, plasma HIV RNA level, or clinical status. Preferred initial drug regimens include nucleoside combinations; at present protease inhibitors are probably best reserved for patients at higher progression risk. For treatment failure or drug intolerance, subsequent treatment considerations include resistance, drug options, disease stage, underlying conditions, and concomitant medication(s). Therapy for primary (acute) infection, high-risk exposure to HIV, and maternal-to-fetal transmission are also addressed. Therapeutic approaches need to be updated as new data continue to emerge.

From Brown University School of Medicine, Providence, RI (D. Carpenter); the University of Miami (Fla) School of Medicine (D. Fischl); Harvard Medical School, Boston, Mass (M. H. Hammer and Hirsch); the International AIDS Society–USA, San Francisco, Calif (D. Richman); Stanford (Calif) University Medical Center (D. Katzenstein), Stanford Hospital, San Francisco; British Columbia (D. Montaner); University of California, San Diego, and San Diego Veterans Affairs Medical Center (D. Richman); the University of Alabama at Birmingham (D. Saag); the University of Colorado School of Medicine (D. Schooley); AIDS Research Consortium of Miami (G. Thompson), Institute of Tropical Medicine, Rotterdam, The Netherlands; Rome, Italy (D. Vella); Hospital Richard-Grave, Brussels, Belgium; X Richat Medical School, Paris, France (D. Yeni); and the University of California, San Francisco (D. Volberding).

Financial disclosures appear at the end of this article.

Reprints: International AIDS Society–USA, 363 Kearny St, San Francisco, CA 94108

146 JAMA, July 10, 1996—Vol 276, No. 2

For the International AIDS Society–USA

Antiretroviral Therapy for HIV Infection—Carpenter et al

146
Mortality vs. HAART Utilization

Palella F et al, HOPS Study
Per Stefano Vella la prospettiva di cura è in un cocktail di farmaci dai costi elevatissimi

Ma la terapia sarà solo per pochi
YEAR 2000: difference in mortality between the rich north and the poor south
Community mobilization
Durban 2000 – Activism from the South

Global March for access to HIV treatment
Treatment Access Campaign (and others)

EVERYONE HAS THE RIGHT TO HEALTH!

All people with HIV/AIDS have a right to access treatments in addition to health care, employment, education, clean water, adequate nutrition, and housing. Denying people with HIV/AIDS access to affordable medicines in order to protect profits or intellectual property rights, is tantamount to genocide.
Kofi Annan, UN Secretary General: Call for 7 – 10 billion war chest against AIDS and the creation of the Global Fund (launched Jan 2002) “… we must put care and treatment within everyone's reach”.

UNGASS AIDS, June 2001 Declaration of Commitment: “… make every effort to provide … the highest attainable standard of treatment for HIV/AIDS, including … the effective use of quality-controlled anti-retroviral therapy …”

Schwartländer et al, Science, June 2001
UNGASS 2001:
THE GLOBAL FUND WAS BORN

The Global Fund
To Fight AIDS, Tuberculosis and Malaria

Results 2018

27 million lives saved

17.5 million people on antiretroviral therapy for HIV
79.1 million HIV tests taken
9.4 million people reached with HIV prevention programs & services

5 million people with TB treated
102 thousand people with drug-resistant TB on treatment

197 million mosquito nets distributed
108 million cases of malaria treated

US$ 4.2 billion Global Fund grants disbursed
US$ 205 million savings generated by pooled procurement

Lives saved are cumulative since 2002. All other results were achieved in 2017 in countries where the Global Fund invests.
Time to act: global apathy towards HIV/AIDS is a crime against humanity

Robert Hogg, Pedro Cahn, Elly Katabira, Joep Lange, NM Samuel, Michael O’Shaughnessy, Stefano Vella, Mark Wainberg, Julio Montaner
In June 2002, WHO includes 10 ARVs in the list of essential medicines.
HIV PHARMACEUTICAL INNOVATION
Box 4: Access to medicines and the Doha Declaration on TRIPS and Public Health

Measuring access to medicines is a complex task, but price is one key factor among others. The Doha Declaration on TRIPS and Public Health recognized concerns about effects on prices while noting the need for innovation. Since the Declaration was adopted in 2001, prices for many treatments have fallen significantly, in part due to generic competition and tiered pricing schemes (see graph below). Surveys also show a marked increase in the use of TRIPS flexibilities to promote access to medicines.

Falling prices of first-line combinations of some first-line anti-retroviral therapies for HIV/AIDS since 2000

• “Each member has the right to grant compulsory licences and the freedom to determine the grounds upon which such licences are granted” and
• “to determine what constitutes a national emergency or other circumstances of extreme urgency”.

• Public health crises include “those relating to HIV/AIDS, tuberculosis, malaria and other epidemics” and “other circumstances of extreme urgency”.
Response to the AIDS Pandemic —
A Global Health Model

Peter Piot, M.D., Ph.D., and Thomas C. Quinn, M.D.

Just over three decades ago, a new outbreak of opportunistic infections and Kaposi’s sarcoma was reported in a small number of homosexual men in California and New York.1,2 This universally fatal disease, which was eventually called the acquired immunodeficiency syndrome (AIDS), was associated with a complete loss of CD4+ T cells. Within the first year of its description, the disease was also identified in patients with hemophilia, users of injection drugs, blood-transfusion recipients, and infants born to affected mothers. Soon thereafter, a heterosexual epidemic of AIDS was reported in Central Africa, preferentially affecting women.3,4 Little did we know at the time that this small number of cases would eventually mushroom into tens of millions of cases, becoming one of the greatest pandemics of modern times.

Within 2 years after the initial reports of AIDS, a retrovirus, later called the human immunodeficiency virus (HIV), was identified as the cause of AIDS.5 Diagnostic tests were developed to protect the blood supply and to identify those infected. Additional prevention measures were implemented, including risk-reduction programs, counseling and testing, condom distribution, and needle-exchange programs. However, HIV continued to spread, infecting 10 million persons within the first decade after its identification.

The second decade of AIDS was marked by further intensification of the epidemic in other areas of the world, including the southern cone of Africa, which saw an explosive HIV epidemic. Asia and the countries of the former Soviet Union also reported a marked increase in the spread of HIV. However, by the mid-1990s, with the discovery of highly active antiretroviral therapy, rates of death in developed countries started to decline. The use of antiretroviral drugs during pregnancy also resulted in a substantial decline in mother-to-child transmission of HIV in high-income countries. However, without access to antiretroviral drugs in low- and middle-income countries, rates of death and mother-to-child transmission continued to increase, with 2.4 million deaths and more than 3 million new infections reported in 2001. Of these new infections, two thirds occurred in sub-Saharan Africa.6

International Response to AIDS — A Global Health Model

It was not until the third decade of the epidemic that the world’s public health officials, community leaders, and politicians united to combat AIDS. In 2001, the United Nations General Assembly endorsed a historic Declaration of Commitment on HIV/AIDS, a commitment that was renewed in 2011.7 These actions resulted in the formation of the Global Fund to Fight AIDS, Tuberculosis, and Malaria, which was established to finance anti-AIDS activities in developing countries. In 2003, President George W. Bush announced the President’s Emergency Plan for AIDS
HIV AS A MODEL FOR GLOBAL HEALTH

1. It drew together towards the common objective of fighting health inequalities

✓ scientists,
✓ clinicians,
✓ public health officials,
✓ visionary politicians,
✓ economists,
✓ NGOs, faith based-organizations
✓ and patients
2. It recognized the **supranational character of problems of disease** and their amelioration, and the fact that no individual country can adequately address diseases in the face of the movement of people, trade, microbes, and risks.

3. It mobilized **innovative drug production, pricing and procurement**, both from generic and proprietary manufacturers.
HIV AS A MODEL FOR GLOBAL HEALTH

4. It focused on deeper knowledge of the burden of disease to **identify key health disparities and develop strategies for their reduction.**

5. It recognized that **people affected by disease have a crucial role** in the discovery and advocacy of new modes of treatment and prevention and their equitable access.

6. It based the action on **ethical and moral values** that **recognize that equity and rights are central** to the larger goals of preventing and treating diseases worldwide.
MAKE "END AIDS by 2030"

GOAL NO. 1 IN POST 2015 DEVELOPMENT AGENDA
HIV

New cases of HIV per 1,000 people

HIV treatment helps prevent new infections. An important step toward universal treatment is making sure that people living with HIV know their status. Currently, only 70 percent do. Studies from around the world demonstrate that people, especially those who are hard to reach and at risk, prefer self-testing to clinic-based testing. So far, approximately 40 countries have self-testing policies. If that number goes up, the number of new infections will go down.

SDG Target: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases. Target shown on chart has been extrapolated from UNAIDS target of 200,000 new infections among adults in 2030.
Addressing barriers to the end of AIDS by 2030

The introduction of combination antiretroviral therapy (ART) in 1996 was the first milestone in the fight against HIV/AIDS. Its impact has been enormous. Today, we have solid evidence that early ART initiation provides benefit for the health of the HIV-infected patient.

The concept of treatment as prevention is gaining ground, with decreasing HIV incidence proportional to ART coverage. With the advent of ART, there is now a possibility of decreasing the risk of HIV transmission. However, while ART has been shown to be effective in reducing HIV transmission, there is still a need for continued research and development of new therapies.

The first challenge is scientific: the discovery of an HIV vaccine. While ART has been shown to be effective in reducing the risk of HIV transmission, there is still a need for continued research and development of new therapies.

The second challenge is operational: the expansion of ART programmes. The availability of ART programmes is not sufficient to meet the needs of all HIV-infected individuals. However, with the advent of ART, there is now a possibility of decreasing the risk of HIV transmission. In order to meet the needs of all HIV-infected individuals, there is a need for continued research and development of new therapies.

The third challenge is ethical: the distribution of ART. While ART has been shown to be effective in reducing the risk of HIV transmission, there is still a need for continued research and development of new therapies. However, with the advent of ART, there is now a possibility of decreasing the risk of HIV transmission. In order to meet the needs of all HIV-infected individuals, there is a need for continued research and development of new therapies.

Finally, the fourth challenge is social: the stigma of HIV/AIDS. While ART has been shown to be effective in reducing the risk of HIV transmission, there is still a need for continued research and development of new therapies. However, with the advent of ART, there is now a possibility of decreasing the risk of HIV transmission. In order to meet the needs of all HIV-infected individuals, there is a need for continued research and development of new therapies.

End of AIDS on the horizon, but innovation needed to end HIV

In The Lancet, Viviana Lima and colleagues describe the ongoing progress achieved in the clinical care of HIV-infected patients in Brazil. In 2010, the authors described the importance of maintaining and improving ART programmes. The authors note that, although the number of patients on ART has increased, the number of patients who are lost to follow-up has also increased. In order to improve the clinical care of HIV-infected patients, there is a need for continued research and development of new therapies.

The authors also highlight the importance of maintaining and improving ART programmes. The authors note that, although the number of patients on ART has increased, the number of patients who are lost to follow-up has also increased. In order to improve the clinical care of HIV-infected patients, there is a need for continued research and development of new therapies.

The authors conclude that, in order to improve the clinical care of HIV-infected patients, there is a need for continued research and development of new therapies.
“We have never ended a global epidemic without a vaccine or a cure and HIV will not be an exception”

Vella S. Wilson D. From Durban to Durban: end of AIDS further than hoped. 
A way forward: the agenda 2030
3 Good Health and Well-being
SDG 3 - TARGETS

TARGET 3-1
REDUCE MATERNAL MORTALITY

TARGET 3-2
END ALL PREVENTABLE DEATHS UNDER 5 YEARS OF AGE

TARGET 3-3
FIGHT COMMUNICABLE DISEASES

TARGET 3-4
REDUCE MORTALITY FROM NON-COMMUNICABLE DISEASES AND PROMOTE MENTAL HEALTH

TARGET 3-5
PREVENT AND TREAT SUBSTANCE ABUSE

TARGET 3-6
REDUCE ROAD INJURIES AND DEATHS

TARGET 3-7
UNIVERSAL ACCESS TO SEXUAL AND REPRODUCTIVE CARE, FAMILY PLANNING AND EDUCATION

TARGET 3-C
INCREASE HEALTH FINANCING AND SUPPORT HEALTH WORKFORCE IN DEVELOPING COUNTRIES
The Sustainable Development Goals are interlinked
The Sustainable Development Goals are interlinked
500 million people worldwide lack health care including access to essential medicines, vaccines, diagnostics, medical devices, and health technologies that prevent and treat diseases
Access to medicines: lessons from the HIV response

Just two decades ago, HIV/AIDS treatments were prohibitively expensive and accessible in only a few affluent countries. But remarkable reductions in costs have enabled treatment expansion that has reduced mortality and transmission. Today, first-line HIV drugs cost less than US$100 per person per year, a 99% reduction from more than $10,000 in 2000. The number of people receiving HIV treatment doubled in just 5 years, from 9 million in 2011 to more than 18 million today.1

In a world facing growing inequalities, the HIV response has lessons for low and middle-income countries (LMIC)—but also for high-income countries—on access to care and treatment for communicable diseases and for non-communicable chronic diseases, a global pandemic that dwarfs the HIV epidemic in scale.2

The transformative power of the HIV response was underpinned by moral rather than technical arguments. A unique coalition of activists, scientists, celebrities, and religious and community leaders from all over the world argued that no one should be denied life-saving treatment because of area of residence or income. The moral imperative was operationalised by activism for more urgent drug discovery, regulatory approval, and voluntary and compulsory licensing, followed by shifts towards large-scale generic production. Economies of scale underpinned a drive towards more efficient, cheaper production, and drove prices down. Major donors such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria and the US President’s Emergency Plan for AIDS Relief bought generic drugs. The Clinton Health Access Initiative negotiated price-volume discounts

The regimen which contains DTG (dolutegravir) is becoming extensively available in LMIC countries for about 1/100 of the current price – around US $75 per person per year.
A New Deal to Close the Gap in Health Innovation and Access

The rising costs of health technologies and the lack of new tools to tackle health problems like disease outbreaks and antimicrobial resistance is a growing problem. Catalyzing innovation, especially for rare diseases, diseases of the poor, and the development of new antibiotics has proven very difficult without market incentives.

The twin challenges of innovation and access constrain health outcomes and hinder social and economic development in rich and poor countries.

The Imbalance Between Human Rights, Intellectual Property Rights and Public Health Objectives is Leaving People Behind
TARGET 3.8

ACHIEVE UNIVERSAL HEALTH COVERAGE
Universal Health Coverage (UHC) means that ALL PEOPLE can obtain the quality health services they need without suffering financial hardship.
The concept of “public good”

non exclusive: anyone can use them
non competitive: their use will not limit others to use them
The concept of “public good”

Progress of medicine and essential medicines shall be considered as global public goods and be accessible to all human beings living on our planet
Thank you

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