Neglected Tropical Diseases: Balancing the Fatal Imbalance

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4th KEMRI Annual Scientific Health (KASH) Conference
February 2014
Presentation Outline

- Neglected Tropical Diseases (NTDs)
- The Fatal imbalance
- Addressing the imbalance
- DNDi’s contribution
  - The role of disease specific Platforms
  - WHO
  - WHA - CEWG
  - The London Declaration
  - Drug Regulation in Africa
- Way forward
The Landscape

Neglected Tropical Diseases
Neglected Diseases: Primarily Affect Developing Countries & Lie Outside the World Market

Global Diseases

Most Neglected Diseases

Neglected Diseases

World pharmaceutical market
$856 bn in 2010*
nearly $1,100 bn forecast by 2015

*Source: IMS Health
<table>
<thead>
<tr>
<th>WHO List of Neglected Tropical Diseases</th>
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<tr>
<td>Buruli Ulcer</td>
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<td><strong>Chagas disease (American trypanosomiasis)</strong></td>
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<td>Cysticercosis</td>
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<td>Dengue/Severe dengue</td>
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<td>Dracunculiasis (guinea-worm disease)</td>
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<td>Echinococcosis</td>
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<td>Fascioliasis</td>
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<td><strong>Human African trypanosomiasis</strong></td>
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<td>Leishmaniasis</td>
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<td>Leprosy</td>
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<td><strong>Lymphatic filariasis</strong></td>
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<td>Rabies</td>
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<td>Schistosomiasis</td>
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<tr>
<td>Soil transmitted helminthiasis</td>
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<td>Trachoma</td>
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<tr>
<td>Yaws</td>
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<tr>
<td><strong>Onchocerciasis</strong></td>
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<td>Podoconiosis</td>
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<td>Mycetoma</td>
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<td>Scabies</td>
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<td>Stongylodiasis</td>
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Burden of Neglected Tropical Diseases

This map displays countries endemic for each of these diseases based on 2009-2010 data and international borders.

(from: www.unitingtocombatntds.org)
The Fatal Imbalance

A Decade Ago, Pipeline Virtually Empty for Neglected Diseases

Health R&D (1975 – 1999)

1,393 total products approved

1975-1999

A Fatal Imbalance

From 1975-1999:

- 16 of 1393 new products for neglected tropical diseases + malaria and TB (1.1%) despite these diseases representing 12% of global disease burden

- approx. 10% of R&D dedicated to illnesses that affect 90% of global disease burden (‘10/90 gap’)

Source: Fatal Imbalance: The Crisis in Research and Development for Neglected Diseases, MSF, 2001
The R&D Gap


Belen Pedrique, Nathalie Strub-Wourgaft, Claudette Some, Piero Olliaro, Patrice Trouiller, Nathan Ford, Bernard Pécoutl, Jean-Hervé Bradol

Published in October 2013
The Lancet Global Health
Objective of the Study

Reassess the state of R&D for neglected diseases compared to other diseases over 2000-2011 based on:

- Approved products
- Ongoing clinical trials
Methods: selection of diseases

49 infectious and parasitic diseases, selected out of existing lists:

- WHO list of NTDs,
- Trouiller et al, Hotez et al,
- PLOS Neglected Tropical Diseases journal disease scope,
- G-FINDER 2011 report,
- BIO Ventures for Global Health 2012 report

5 categories

- TB
- malaria
- diarrheal diseases
- neglected tropical diseases according to WHO
- Other neglected diseases
Methods: approved products

- All **products approved** across all indications from 1 January 2000 to 31 December 2011

- **Sources:**
  - EMA and US FDA;
  - Databases of countries* belonging to the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Co-operation Scheme (PIC/S)
  - WHO List of Prequalified Medicinal Products and the WHO Essential Medicines List used as a proxy measure of medical benefit

* Belgium, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Portugal, Spain, Sweden, The Netherlands, United Kingdom, Canada, Australia, Switzerland, Iceland, Argentina; Japan, India and Brazil.
Methods: approved products (2)

- New products classified into:
  - new chemical entity (NCE)
  - new indication (NI)
  - new formulation (NF)
  - fixed-dose combination (FDC)
  - vaccine or biological product
Methods: clinical trials review

- Data bases: (Sep 1999-Dec 2011)
  - Phase I-III clinical trials listed in the US National Institutes of Health (NIH) (ClinicalTrials.gov)
  - WHO registry of clinical trials
- 31 December 2011 “Snapshot” of active trials
- Clinical trial sponsors were classified into
  - public institutions (e.g. Fiocruz)
  - private not-for-profit organisations (e.g. PDPs)
  - private industry/for-profit entity (e.g. pharmaceutical industry)
  - multiple-sponsors.
Clinical Trials Findings

Clinical trials between 1999-2011

- All diseases: 148,445
- Neglected diseases: 2,016 (1%)

In on going clinical trials for Neglected diseases:

- 123 new products being tested
- 55% (68/123) are vaccines and biological products, including 21 against malaria.
- 28% (34/123) are new products for NTDs
A persistent imbalance between disease burden and product development for NTDs.

A major R&D gap remains in NCEs for NTDs, both in terms of new approvals and ongoing clinical development.

Malaria, TB, and diarrheal diseases remain the primary focus of product-development research, with little or no focus at all on NTDs.
Addressing the Imbalance (1)

The DNDi’s Model - Contribution to R&D for NTD’s for 10 years
Since 1999, from ideas to realization …

- 1999
  - First meeting to describe the lack of R&D for neglected diseases
  - MSF commits the Nobel Peace Prize money to the DND Working Group
  - JAMA article: ‘Access to essential drugs in poor countries - A Lost Battle?’

- July 2003
  - Creation of DNDi (7 founding members)
DNDi: Patient Needs-Driven & Innovative R&D Model

- Deliver 11 to 13 new treatments by 2018
- Establish a robust pipeline
- Use and strengthen existing capacity in disease-endemic countries
- Raise awareness and advocate for increased public leadership

**Founding Partners**

- Indian Council for Medical Research (ICMR)
- Kenya Medical Research Institute (KEMRI)
- Malaysian MOH
- Oswaldo Cruz Foundation, Brazil
- Médecins Sans Frontières (MSF)
- Institut Pasteur France
- TDR (permanent observer)

- Geneva Headquarters
- USA
- India
- DRC
- Japan
- Malaysia
- Kenya
- Brazil

- 7 worldwide offices
Responding to the Needs of Patients Suffering from Neglected Diseases

- Malaria
- Leishmaniasis
- Paediatric HIV
- Sleeping Sickness (HAT)
- Chagas Disease
- Filaria
6 New Treatments Developed Since 2007

- Easy to Use
- Affordable
- Field-Adapted
- Non-Patented
Partnerships: No One Can Do It Alone
A Global Network to Leverage Resources

Criteria for Success:

□ Share the same vision
□ Mutual understanding
□ Involvement throughout the whole process
Disease Specific Platforms

*Endemic country contribution to NTD research*
Utilizing and Strengthening Research Capacities in Disease-Endemic Countries

Clinical Research Platforms
- Defining patient needs and TPP
- Strengthening local capacities
- Conducting clinical studies (Phase II/III)
- Facilitating registration
- Accelerating implementation of new treatments

Transfer of technology
- Data Management Centre – Nairobi
- Clinical sites with good practices
- Building networks of excellence (i.e. ANDi)
Leishmaniasis East Africa Platform (LEAP)

A group of scientists and institutions working on developing clinical trial capacity to bring new treatments to patients.

SUDAN: 3 sites (Kassab, Dooka, Um El Kher)
Univ. of Khartoum
Federal Ministry of Health

ETHIOPIA: 2 sites (Gondar, Arba Minch)
Addis Ababa Univ.
Gondar Univ.
DACA
Ministry of Health

UGANDA: 1 site (Amudat)
• Makerere Univ.
• Ministry of Health

KENYA: 2 sites (Nairobi, Kimalel)
KEMRI
Ministry of Health

LEAP collaborates with DNDi, MSF, IOWH – India, IDA, TDR and industry partners in Visceral Leishmaniasis (VL) R&D work in East Africa.
Challenge to Conduct Clinical Trials in Very Difficult Settings

- Access to Sites
- Status of Infrastructure
- Staff Limitations
Addressing the Imbalance (2)

- The WHO Road Map
- WHA - CEWG
- The London Declaration
- Drug Regulation in Africa
The WHO Road Map

Accelerating work to overcome the global impact of neglected tropical diseases

January 1, 2012
ACCELERATING WORK TO OVERCOME THE GLOBAL IMPACT OF NEGLECTED TROPICAL DISEASES
A ROADMAP FOR IMPLEMENTATION

EXECUTIVE SUMMARY

“This roadmap for implementation represents the next step forward in relieving and, in many cases, finally ending the vast misery caused by these ancient diseases of poverty”.

Dr Margaret Chan, Director-General, World Health Organization

Printed in France. Reprinted: March and April 2012
In 2003, WHO began to focus control measures away from specific diseases to the health needs of poor communities.

This led to the introduction of two major strategic interventions:

- *Preventive chemotherapy*
- *Intensified disease management*
Other Measures

- Control of vectors and their intermediate hosts
- Veterinary public health
- Water and sanitation
- Health awareness
- Education
- Capacity building
2

WHA - CEWG

- WHO - Consultative Expert Working Group
- Kenya Brazil Resolution
BACKGROUND & POLICY CONTEXT

10 year political process in WHO

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<th>2003</th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
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<tr>
<td>Resolution WHA56.27</td>
<td>Resolution WHA59.24</td>
<td>Resolution WHA61.21</td>
<td>Resolution WHA63.28</td>
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- Intellectual property rights, innovation and public health
- Public Health, innovation, essential health research and intellectual property rights: towards a global strategy and plan of action
- Global strategy and plan of action on public health, innovation and intellectual property
- Establishment of a consultative expert working group on research and development: financing and coordination

Commission on Public Health, Innovation and Intellectual Property Rights

Intergovernmental Working Group

Expert Working Group

Consultative Expert Working Group (CEWG)

(a) take forward the work of the Expert Working Group;
(b) deepen the analysis of the proposals in the Expert Working Group’s report, and in particular: (i) examine the … four innovative sources of financing proposed (ii) review the five promising proposals …; and (iii) further explore the six proposals that did not meet the criteria …
(c) consider additional submissions and proposals
The London Declaration

Inspired by the World Health Organization’s 2020 Roadmap on NTDs

Launched 30th January 2012

Webcast at KEMRI
Endorsed – 19 institutions

1) Abbott  
2) Bayer  
3) Becton Dickinson  
4) Bill & Melinda Gates Foundation  
5) Bristol-Myers Squibb  
6) DNDi  
7) Eisai  
8) Gilead  
9) GlaxoSmithKline  
10) Johnson & Johnson  
11) Merck KGaA  
12) MSD  
13) Mundo Sano  
14) Novartis  
15) Pfizer  
16) Sanofi  
17) UKaid  
18) USAID  
19) World Bank
The London Declaration

*we commit to doing our part to:*

- Ensure the necessary supply of drugs and other interventions to help **eradicate** Guinea worm disease

  **Eliminate** by 2020 lymphatic filariasis, leprosy, sleeping sickness (human African trypanosomiasis) and blinding trachoma.

- **Control** by 2020 schistosomiasis, soil-transmitted helminthes, Chagas disease, visceral leishmaniasis and river blindness (onchocerciasis).

- Advance R&D through partnerships and provision of funding to find next-generation treatments and interventions for neglected diseases.
The London Declaration

*we commit to doing our part to:*

- Enhance collaboration and coordination on NTDs at national and international levels
- Enable adequate funding with endemic countries to implement NTD programmes
- Provide technical support, tools and resources to support NTD-endemic countries to evaluate and monitor NTD programmes.
- Provide regular updates on the progress in reaching the 2020 goals and identify remaining gaps.
To achieve this ambitious 2020 vision, we call on all endemic countries and the international community to join us in the above commitments by:

- **providing** the resources necessary across sectors to remove the primary risk factors for NTDs—poverty and exposure

- **ensuring** access to clean water and basic sanitation, improved living conditions, vector control, health education, and stronger health systems in endemic areas.
FIRST BIENNIAL SCIENTIFIC CONFERENCE ON MEDICINES REGULATION IN AFRICA

Birchwood Hotel | Johannesburg – South Africa | 2-3 December, 2013
ABSTRACTS | DEC 2013

Conference Theme:
Building Partnerships for Sustainable Capacity Development in Medicines Regulation in Africa
Issues addressed:

- **Global regulatory environment - Where is Africa?**
  - Continental Progress and updates – *EAC noted as a best practice*
  - Regional initiatives for strengthening regulatory systems
  - Harmonisation of medicines regulatory requirements

- **Regulatory Harmonization, Capacity development and partnership**
  - EDCTP Network of Excellence
  - Creating a regulatory profession
  - Role of Academia in Medicines regulation
The Way Forward

Addressing the challenges in Africa to balance the fatal imbalance
We need to build innovation and clinical research capacities in Africa

- Public African leadership needed
- Strengthen Sustainable Research capacities
- Stimulate transfer of technologies to Africa
- Strong partnerships and South-South collaborations
- Strengthen Regulatory environment
- Governments to take more responsibility for health of citizens
- Translation of clinical research results into policy
- Collaboration between PDPs and MOH to facilitate access to new tools
MEDIA FIELD VISIT
BARINGO – KIMALEL
Thank You to All Our Partners & Donors

R&D FOR NEGLECTED PATIENTS

via the 4th Sector Health Project implemented by Abt Associates, Inc.

www.connect2fightneglect.org  www.dndi.org