Innovation & Access for Neglected Populations

A dynamic approach towards 2023

Dr Bernard Pécout, DNDi Executive Director
Origins of DNDi

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
• Founding partners:
  • Institut Pasteur, France
  • Indian Council of Medical Research, India
  • Kenya Medical Research Institute, Kenya
  • Médecins Sans Frontières
  • Ministry of Health, Malaysia
  • Oswaldo Cruz Foundation/Fiocruz, Brazil
  • WHO – TDR (Special Programme for Research and Training in Tropical Diseases) as a permanent observer
7 new treatments delivered, recommended, implemented

- 30 projects, 8 diseases areas
- 13 entirely new chemical entities (NCEs)
- Over 160 partnerships, most in endemic countries
- 160 staff, half in endemic countries & 700 people working on DNDi projects
- EUR 400 million raised equally from public and private sources
- 4 regional disease-specific clinical trial platforms/ networks and several technology transfers

✓ Easy to use
✓ Affordable
✓ Field-adapted
✓ Non-patented
Fatal imbalance still exists, an adapted R&D response is required

756 products developed (excluding vaccines & biologicals) (2000-2011) *

Business Plan Review

Extensive consultation through Regional Offices and with key stakeholders and partners to assess:

- Lessons learned from DNDi experience
- R&D landscape evolution
- Patient needs and gaps
- Future trends

The R&D landscape for neglected patients has changed but large gaps still remain.

1. **R&D priorities** do not sufficiently originate from **low- and middle-income countries**

2. Patients’ **needs are not prioritized** (e.g. Ebola, mycetoma, etc.)

3. **Innovation is not linked to equitable access** even when there is commercial incentive to drive innovation (e.g. HCV)

4. **Market incentives** aligned with IP/exclusivity do not adequately address health needs in LMICs (e.g. AMR)

These are the **fundamental challenges for the future of biomedical innovation**.
An unchanged vision, with a broader mission

- Develop new drugs or new formulations of existing drugs for people suffering from neglected diseases

- Maintain commitment to most neglected diseases and take on new disease areas

- Strengthen capacities in a sustainable manner

- Adopt a more dynamic portfolio approach with new operating models
Unchanged strategy: Improving treatments with existing drugs and delivering New Chemical Entities

New chemical entities (NCEs)

Long-term projects

New formulations
New indications for existing drugs

Medium-term projects

Completing registration dossier
Geographical extension

Short-term projects

Partners Meeting, Bernard Pécoul, June 2016
Most neglected diseases remain at the core, with new diseases taken on progressively.

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Legend:
- Full portfolio (multiple projects at different phases)
- Development
- Implementation
- Disease strategy complete
- Incubator

**Develop New Chemical Entities**

*Partners Meeting, Bernard Pécoul, June 2016*
By 2023: Deliver 16 to 18 treatments with EUR 650 million

Influence the R&D landscape for neglected patients
- Political leadership for **needs-driven** R&D
- Creation of a **global fund and mechanism**
- Evidence on alternative **R&D models**

Develop treatments for people suffering from neglected diseases
- Deliver 16-18 treatments
- 3 new chemical entities (NCEs)
- ~10 disease areas
- Focus on access and measure impact

Strengthen research capacity, led by Regional Offices
- **R&D platforms** in disease-endemic countries
- **Regionally-driven initiatives**
- **Patient access** to treatments
- **Transfer of technology**
Develop treatments for patients suffering from neglected diseases
Sleeping sickness: Two new treatments in development to support sustainable elimination

13 years ago
Melarsoprol:
Toxic, resistant
Eflornithine:
Not available

Since 2009
NECT
Improved therapy

2018?
Fexinidazole
Oral treatment (10 days)

Future objective
SCYX-7158
Single-dose, oral treatment

Partners Meeting, Bernard Pécoul, June 2016
Leishmaniasis: Improving treatments with existing drugs

13 years ago
Treatment limitations:
- Toxic
- Painful
- Resistance
- Not registered
- Expensive
- Long duration
- Not field adapted

Since 2010
SSG & PM for VL in Africa

Since 2011
New treatments for VL in Asia
(SD Ambisome®, Paromomycin + Miltefosine combination)

2016-17
A new first-line treatment for VL in Latin America

By 2023
- Treatment for HIV/VL
- Treatment for PKDL
- Treatment combination for CL

Partners Meeting, Bernard Pécoul, June 2016
Leishmaniasis: Towards new, safe, and effective treatments issued from drug discovery

< 2016
Drug discovery
- 6 new series from DNDi or partners
- Selection of an immune modulator (CpG) for Cutaneous Leishmaniasis (CL)

2016+
Progress with New Chemical Entities
- Anfoleish for CL
- 3 NCEs entering pre-clinical development

By 2023
To deliver:
- A new oral treatment for VL and/or
- A CpG for CL
Chagas disease: improve existing treatments and strong effort in drug discovery

13 years ago
Benznidazole
Nifurtimox
Treatment limitations
- Toxic
- Limited efficacy
- Lack of availability
- No paediatric formulation

2011
Paediatric dosage form of benznidazole
- age-adapted
- easy-to-use
- affordable

2016-2020
Shorter, simplified treatment
- Fexinidazole (NCE)
- New benznidazole regimens

By 2023
Bring NCEs into development stage
Chagas: How to address the major access gap?
Less than 1% of patients treated

- With Chemo/Mundo Sano, register adult & paediatric BZN with US FDA, in Latin American countries
- Availability and affordability: multiple sources
- Access plan with the Global Chagas Coalition and other partners
- Pilot projects to boost access to diagnosis and treatment
Dynamic portfolio: New disease areas, new models…

Neglected diseases

- Mycetoma

Neglected patients

- Hepatitis C

Neglected models

- Antimicrobial resistance

Testing rauconazole

Public health approach

Incubation of GARD

Partners Meeting, Bernard Pécoul, June 2016
Hepatitis C: exorbitant price prevents public health approach

Global Prices vary sharply
Profits maximized by charging the most possible in each market

DNDi objective by 2020:

$100 treatment

USA: $84,000
Brazil: $7,500
India: $900
Abundant R&D pipeline… but many drug candidates abandoned
A pan-genotypic treatment for less than $300

- DNDi, Pharco and Presidio agreement to test combination of sofosbuvir + ravidasvir
- Partnership with Malaysia and Thailand to conduct Phase II/III multicentre study (900 patients)
- Using innovative licensing agreement or TRIPS flexibilities
An innovative licensing agreement for ravidasvir that covers a very large territory
DNDi & WHO to collaborate to incubate GARD for antimicrobial resistance R&D

- 2014
  - DNDi consultations: Business Plan scope – AMR suggested
  - 8-9 Dec. 2014 WHO-DNDi meeting to explore PDP for antibiotics

- 2015
  - May 2015 WHA adopts GAP-AMR + resolution
  - Oct. 2015 G7 Declaration: explore PDP for AMR

- 2016
  - 13 Nov. 2015 DNDi-WHO consultation support for PDP
  - 1 Dec. 2015 Board approves incubation
  - 29 Feb. 2016 1st Scientific consultation Institut Pasteur
  - 24 May 2016 GARD Launch

EUR 2.2 million of the required EUR 3 million seed funding committed to date:
- Federal Ministry of Health of Germany
- The Netherlands’ Ministry of Health Welfare and Sports
- South African Medical Research Council
- United Kingdom Department for International Development
- Médecins Sans Frontières

Partners Meeting, Bernard Pécoul, June 2016
GARD: Vision & Objectives

In cooperation with the public and private sectors:

• develop new antibiotic treatments addressing AMR
• promote their responsible use for sustainable access

by setting up a not-for-profit product development partnership that will focus on global health needs, and ensuring any new product is adapted to resource-limited settings.
Strengthen research capacity, led by Regional Offices
Using & strengthening research capacities in endemic regions

**A Key Role for Regional Disease Platforms**

- Defining patient needs and Target Product Profile (TPP)
- Strengthening local capacities
- Conducting clinical trials (Phase II/III studies)
- Facilitating Registration of new therapies
- Accelerating implementation of new therapies, ensure therapies reach patients

**Diseases**

- Chagas
- Leishmaniasis
- Human African Trypanosomiasis (HAT)

**Regional Platforms**

- LEAP: East Africa Platform
- redeLEISH: Network of Researchers and Stakeholders in Leishmaniasis
- CHAGAS Platform de Investigación de la Enfermedad de Chagas
Influence the R&D landscape for neglected patients
Innovation & Access on the political agenda like never before

13 years of discussions at WHA, with 6 resolutions (2003-2016)

- 2003 CIPIH
- 2006 IGWG
- 2008 Expert Working Group on R&D
- 2010 CEWG
- 2013 Demo projects, Global R&D Obs.
- 2016 Priority setting role Obs., voluntary pooled fund, core principles, delinkage

Connect the dots:
- R&D Blueprint for Emerging Pathogens
- July 2016: UN High-Level Panel on Access to Medicines
- September 2016: UN High-Level Meeting on AMR
Need to develop an overarching framework: priority-setting, sustainable funding, and principles

Global Biomedical R&D Fund and Mechanism
For innovations of Public Health importance
governed by public leadership

Global Health R&D Observatory
Priority-Setting, Monitoring, Coordination

AMR
Emerging Infections (incl. Ebola)
Poverty Related / Neglected Diseases

De-linkage
Open Innovation
Licensing for Access
DNDi’s success is only possible through innovative partnerships

CRITERIA FOR SUCCESS
✓ Share the same vision
✓ Mutual understanding
✓ Involvement throughout the whole process

Over 160 partnerships worldwide
EUR 400M secured out of EUR 650M to deliver 16-18 treatments by 2023

- New investments: €390 m
- To be secured: €250 m
- Secured: €140 m

Expenses 2003-2015: €260 m

Public Traditional donors: ~35-40%
Private Traditional donors: ~35-40%
New mechanisms & Emerging countries (Pub & private): ~20-25%

Investments Resources

Including 12.5 % overhead

2003-2015
2016-2023

Partners Meeting, Bernard Pécoul, June 2016
Diversification of donors

- 50% public - 50% private
- max. 25% per donor
The people behind the work… in proximity to patients

- **2010**: 40 HQ, 34 RO
- **2015**: 77 HQ, 78 RO
- **2023**: ~85 HQ, ~125 Regional Offices

*Partner staff*
Give neglected patients a voice. They exist and must be heard. Thank you.
Extra slides
Responding to the Needs of Patients Suffering from Neglected Diseases...

DNDi’s PRIORITY: Neglected Patients

…from Bench to Bedside
For each disease, a Target Product Profile to guide all decisions (example of paediatric HIV)

**IDEAL CHARACTERISTICS (TPP)**

- 4 ARVs in one
- Simple to open and use with water, milk, food
- Good taste
- No fridge needed
- Suitable for infants (<2 months - 3 years)
- TB-treatment compatible
- Affordable for governments
DNDi Business Plan 2015-2023
A dynamic approach to address patient needs

Pipeline focus can quickly be adapted to:

• stay aligned with changes in the environment
• rapidly respond to urgent patient needs
• address specific regional needs

Disease Portfolio

New Opportunities

Completion & exit
Growth is controlled as new diseases come on board

Budget projections **EUR 48-50 million** per year.
Leishmaniasis: 350 million people living at risk

- 200,000 – 400,000 new cases of visceral leishmaniasis each year
- 700,000 – 1,300,000 new cases of cutaneous leishmaniasis each year
- About 48,000 deaths due to visceral leishmaniasis in 2012
- 3,373,599 DALYs
- A lack of surveillance systems and frequency of disease in remote areas and marginalized population means that it is difficult to estimate the true incidence of leishmaniasis and the case-fatality of visceral leishmaniasis.
- Present IN 4 CONTINENTS