Drugs for Neglected Disease initiative

A Patient Needs-Driven & Innovative R&D Model

Pascale Boulet, Head of Policy Affairs
Responding to the Needs of Patients Suffering from Neglected Diseases

- Malaria
- Leishmaniasis
- Sleeping Sickness (HAT)
- Chagas Disease
- Paediatric HIV
- Filaria
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)

- **7 worldwide offices**
6 New Treatments Developed Since 2007

- Easy to Use
- Affordable
- Field-Adapted
- Non-Patented
Patient Needs-Driven: Beginning With The End In Mind

Definition of the Target Product Profiles with experts of endemic countries, researchers, clinicians, control programmes, patients associations, WHO, etc.

TPP Criteria
- Indications
- Population
- Clinical Efficacy
- Safety and Tolerability
- Stability
- Route of Administration
- Dosing Frequency
- Cost
A Global Network to Leverage Resources

Criteria for Success:

- Share the same vision
- Mutual understanding
- Involvement throughout the whole process
Utilizing and Strengthening Research Capacities in Disease-Endemic Countries

Major Role of Regional Disease Platforms:

- Defining patients’ needs and target product profile (TPP)
- Strengthening local capacities
- Conducting clinical trials (Phase II/III studies)
- Facilitating registration
- Accelerating implementation of new treatments (Phase IV & pharmacovigilance studies)
DNDi Portfolio-Building Model:
Address Immediate Patient Needs & Deliver Innovative Medicines

- **Long-term projects**
  - New chemical entities (NCEs)

- **Medium-term projects**
  - New formulations (fixed-dose combinations)
  - New indications of existing drugs

- **Short-term projects**
  - Completing registration dossier
  - Geographical extension

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**Discovery**
- R
- LS
- LO

**Pre-clinical**

**Clinical**

**Implementation**

DNDi
Drugs for Neglected Diseases Initiative
DNDi Portfolio: A Mix of Existing Drugs & NCEs
6 new treatments available and 12 new chemical entities in the pipeline

- **HAT**
  - Nitroimidazole backup
  - Oxaborole backup
  - SCYX7158
  - Fenixidazole

- **Leishmaniasis**
  - Nitroimidazole backup
  - VL-2098
  - Fexinidazole
  - New VL Therapies Bangladesh
  - SSG&PM VL Combination Therapy Africa
  - Anfoleish (CL)
  - New VL Therapies Africa
  - New Therapies for HIV/VL co-infection Africa
  - New VL Therapies Latin America

- **Chagas Disease**
  - Nitroimidazole series
  - Fenarimol series
  - K777
  - Biomarkers
  - E1224
  - Benznidazole Paediatric dosage form

- **Filarial Disease**
  - Flubendazole

- **Paediatric HIV**
  - ‘4-in-1’ LPV/r-based Fixed-Dose Combos
  - RTV Superbooster HIV/TB co-infection
  - ASAQ FDC Fixed-Dose Combination
  - ASMQ FDC Fixed-Dose Combination

- **Malaria**

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★ New Chemical Entity (NCE), Fexinidazole (for HAT and VL) = 1 NCE

Jan. 2013
Disease Scope & Level of Investment

€ 400M for 2003-2018  => 11 to 13 Treatments

- **Discovery**
  - Leishmaniasis
    - € 100 M
  - HAT
    - € 50-60 M
  - Chagas
    - € 50-60 M
  - Filariasis
    - € 20-30 M
  - Paediatric HIV
    - € 20-30 M
- **Research**
  - € 50-60 M

≈ €10-40 Million per improved treatment
≈ €100-150 Million per new chemical entity (NCE)

- **Development**
  - € 100 M
  - € 50-60 M
  - € 20-30 M
  - € 20-30 M

- **Implementation**
  - 5 treatments (2 delivered)
  - 2 treatments (1 delivered)
  - 2 treatments (1 delivered)
  - 1 treatment

- **Other NTDs**
  - >€ 10 M

- **Malaria**
  - >€ 20 M

- Disease(s) to be chosen
- Completed
Sustainable Funding
Diversification of Donors to Ensure Independence

**Private Donors**
- Médecins Sans Frontières (€48.2M)
- Bill & Melinda Gates Foundation (€43.5M)
- Wellcome Trust (€4.3M)
- Medicor Foundation (€2M)
- Other Private Foundations (incl. Slim, Starr, €2.8M)

**Public Donors**
- United Kingdom – DFID (€38.4M)
- Netherlands – DGIS (€17M)
- France – AFD & MAEE (€14.3M)
- UNITAID (€13.1M)
- Spain – AECID (€12M)
- Switzerland – SDC & Geneva (€11.8M)
- Germany – KFW & GTZ (€9M)
- European Union – FP5,6,7 & EDCTP (€4.4M)
- USA – NIH/NIAID (€1.8M)
- The Global Fund – AMFm (€0.5M)
- Brazil – MoH (€0.4M)
Innovative partnership with sanofi

- FDC developed by DNDi
- Agreement with sanofi for industrial manufacture, registration & distribution
- Non patented
- WHO prequalified, registered in 30 sub-Saharan African countries, India, Bangladesh and Colombia
- Public price: “at cost”
- < US$1 for adult, US$0.50 for children
- Transfer of technology to Zenufa, Tanzania

ASAQ
An innovative unpatented anti-malarial fixed-dose combination (FDC) pill

Over 200 million treatments distributed
Sleeping Sickness: From Unacceptable To Better, Towards Tools for Elimination

10 years ago:
- Eflornithine
- Melarsoprol

Since 2009:
- NECT

2016:
- Oral treatment & rapid diagnostic test
Pediatric HIV: The Right Dose, The Right Taste

Target Product Profile:
- 4 products in 1: granules (FDC)
- Simply open and use with water, milk, food
- No taste
- No cold chain
- Suitable for infants (< 2 mos-3 yrs)
- TB-treatment compatible
- Affordable

Modular format allows flexibility to replace drug in the combination

To be added during HIV/TB therapy

4-in-1 granules in Fixed-Dose Combinations

In partnership with Cipla
DNDi IP Policy

- Affordable treatments / equitable access
- Develop drugs as public goods when possible
- Support follow-on research in neglected diseases
- Decisions on patents & licensing made on a case-by-case basis
- Agreements reflecting characteristics of DNDi’s products:
  - Small markets, little commercial value
  - Distributed through the public sector
  - Developed in partnership
Ensuring Affordability of Treatments
Delinking R&D costs from product price

- Cost in ‘target product profile’ (i.e. nitroimidazoles not expensive)
- Lowest sustainable price defined in license agreement (i.e. <1$ for ASAQ), not reflecting R&D costs
- All endemic countries included
- Non-exclusivity: competition to drive price down
- Reduction of cost of API (i.e. mefloquine with MMV)
New trends in open innovation

- Need for increased sharing of compounds, data and knowledge
- Avoid duplication, save costs, speed up R&D process & stimulate further innovation

‘Open approaches to R&D and innovation includes precompetitive research and development platforms, open source and open access schemes.’

‘Open Knowledge Innovation can be defined as research and innovation that generate knowledge which is free to use without legal or contractual restrictions.’

WHO Expert working Group on R&D financing & coordination

⇒ GSK Open Lab
⇒ Open source drug discovery project (CSIR India)
⇒ ChEMBL-NTD
⇒ WIPO Re:Search,
⇒ Open access Malaria Box
⇒ Medicines Patent Pool
Access
Overcoming Regulatory Barriers

- New Chemical Entities (NCEs) being developed to address specific needs of endemic countries
- Requires strong regulatory reviews by national regulatory agencies (NRAs) of endemic countries
- Increased regional collaboration and support from WHO and well-resourced regulatory agencies
Fatal Imbalance Remains Despite Progress Over A Decade

- 3.8% of new products for neglected diseases (reformulations, combinations)
- 1.2% of NCEs for neglected diseases
- Only 1.4% clinical trials (of nearly 150,000 trials) focus on neglected diseases
- Only 1% of global health investment for neglected diseases*

Source: Pedrique B et al, DNDi/MSF forthcoming publication, 2013

*Source: Mapping of available health research and development data: what’s there, what’s missing, and what role is there for a global observatory? Rottingen et al. Lancet, May 2013
Sustainable Funding
Emergence of New Sources and Mechanisms

- New countries entering the field (BRICS, endemic countries)
- New funding mechanisms: UNITAID, Financial Transaction Tax
- New incentives: Milestone prize, etc.
THANK YOU

www.dndi.org