Monitoring R&D resource flows:
Global resources and challenges

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Challenges

General
- Large gaps in data
- Lack of uniformity in reporting standards, research categories and levels of data disaggregation

Public sector
- Lack of data for many countries beyond OECD

Private sector
- Lack of data transparency
- Lack of data at disease level

Global health R&D expenditures

Compendium on Health Research for Development 1990

WHO Ad Hoc Committee 1996

Global Forum for Health Research 2001-2008

Post CEWG Analysis 2012 (MS in preparation)

G-FINDER 31 NDs 2008-2012

Public: 41-45%  Private: 48-51%  Philan: 7-8%

Public: 66%  Private: < 5% for or in LMICs
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High priorities
1. Strengthening country capacity to collect, collate and analyse [health] R&D data
   
   Critical issue
• Which national body should be responsible for collecting, collating and analysing [health] R&D data?
  o Ministries of Health (but can these have the capacity and mandate to collect ALL health R&D data?)
    >National Health Accounts (but NHAs not conducted in all countries and R&D not always core data)
  o National Statistical Offices
    >National Accounts (but can these handle R&D in private sector and from overseas funding?)

   ** ‘Health R&D’ [and sub-divisions by disease] need to become routine categories of data collection within overall R&D surveys [national, regional, global]

2. Addressing the imbalance between effective demand and supply for data
   
   Critical issue
• Need country agencies (mainly HICs now) to supply data which on the demand side is essentially in the interest of poorer ones. Agencies will only supply data if (i) they have something to gain from the exercise or (ii) those requesting either pay the extra costs or (iii) there are other ways of pressing them to reply (e.g. tax law, statistical law etc): Need a stick and/or a carrot.

   ** Provision of comprehensive and appropriately disaggregated data by funders needs to be incentivised. A UN agency [like WHO] may be more persuasive than a small NGO [like GFHR]; but any scheme should be designed to be of use to health R&D agencies in HICs as well as meeting the global aim

Key resources: global and regional bodies
• UNESCO Institute for Statistics: overall R&D
• RICYT for Latin America: S&T indicators
• AU: African Observatory for Science, Technology and Innovation (AOSTI)
• EUROSTAT: EU, candidate states and EFTA countries
• AFRISTAT: Francophone Africa
**Challenges**

**Private sector**
- Lack of data transparency
- Lack of data at disease level
- The pharmaceutical industry is moving – sideways, East and South
  
  Paradoxically:
  - Mergers and acquisitions, but
  - Shift from ‘vertical’ to ‘horizontal’ structures, including the separation of research from development – consequence is an increasing number of actors involved in different stages of R&D

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**Pharmaceutical industry value chain**

- Manufacturing across the industrial sector is "going horizontal,"
  - vertically integrated supply chains are breaking apart into component layers dominated by horizontal specialists and reconfigured regularly to create more cost-effective combinations.
- This seismic shift is reshaping the future of R&D around the world.
  
  Downey, Greenberg, Kapur. Reorienting R&D for a Horizontal Future
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Pharmaceutical industry value chain
- Discovery
- Development
- Registration
- Manufacturing
- Marketing & Sales

- Vertical disintegration of the R&D process
- Entry of early stage biopharmaceutical firms
- Growth of contract research organizations implementing clinical trials
- Alliances, licensing agreements and joint ventures

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R&D moving East, South

Pharmaceutical R&D globalizing

India
“Pharmacy of the developing world”

2005
Acceded to Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS)
- product as well as process patents
- Intensive innovation drive to create new molecules

China
- Home-based R&D investment
- R&D skills in chemistry, analysis, late stage drug development, clinical trials attracting outsourcing
- ‘Second wave’ now in process, with multinationals establishing more fully integrated R&D capabilities
- Increasingly Indian talent pulled to China to fill key roles, especially for active pharma ingredients

Brazil
1997
New Patent Law

1994-2000
R&D rose >500% to US$ 100m

“Innovative developing counties”

Africa
2005 African Union
- AU Pharmaceutical Manufacturing Plan

2008 WHO-TDR
- African Network for Drugs and Diagnostics Innovation (ANDI)

2010 AU NEPAD COHRED Report
- Strengthening Pharmaceutical Innovation in Africa
Promising models

UIS: “The primary source for cross-nationally comparable statistics on education, S&T, culture, and communication for more than 200 countries and territories.”
- Established in Montreal as an independent institute under UNESCO in 2001
- Countries competed to host: Canada (Quebec) made bigger offer than UK
- Largely financed by contributions by countries, foundations, World Bank

RICYT: Established to promote the development of instruments for measuring and analyzing science and technology in Ibero-America
- Created following First Ibero-American Workshop for Science and Technology Indicators, Argentina 1994. Adopted by the Organization of American States as an Inter-American Network
- National agencies for S&T of all the American countries, as well as those of Spain and Portugal, participate in the RICYT. 28 of them provide indicators to the network.
- Supported by Organization of Ibero-American States and Spanish Agency for International Development Cooperation

AOSTI: Established by a Decision of the Assembly of Heads of States. Among other things, oversees and coordinates STI related activities in AU Member States and develops and manages STI indicators,
- Created by decision of AU in 2009
- HQ established in Malabo, Equatorial Guinea: Host country pledged US$ 3.6 m in 2009 for start-up activities