Trends in the pharmaceutical industry and potential impact on future innovation and access to medicines
The R&D Process: Long, Complex, and Costly

Average cost of R&D is $1.2 Billion
The Current Challenge

- “Our industry is taking too long, we’re spending too much, and we’re producing far too little… Ironically, the crisis in our innovation model comes at a time when we have vastly more scientific knowledge and data than ever before… In the face of diminishing results, we can’t simply perform the same old rituals and hope for a different outcome.”

The case for research and new medications was compelling he said, but with the age of austerity upon us this isn’t enough – drugs have to make their way to patients faster and cheaper. Not only should pharma become more networked, global and entrepreneurial, it needs to be matched with regulations that support an environment of innovation.

- “Even as we rebuild our R&D engine, we must build an environment where pharmaceutical innovation can thrive

  John Lechleiter (CEO Eli Lilly) 10 February 2011
Global R&D Spending ($ Billion) 1996-2009

Source: EvaluatePharma 2010
Top 15 R&D Expenditure ($ Billion) 2011

1. Novartis - $9.58
2. Pfizer - $9.1
3. Roche - $8.8
4. Merck - $8.4
5. Johnson & Johnson - $7.5
6. GlaxoSmithKline - $6.29
7. Sanofi-Aventis - $6.24
8. AstraZeneca - $5.5
9. Eli Lilly - $5.0
10. Bristol-Myers Squibb - $3.8

11. Abbott Laboratories - $3.74
13. Boehringer Ingelheim - $3.2

Total: Over $85 Billion

Source: FiercePharma
New molecules launched

NUMBER OF NEW CHEMICAL OR BIOLOGICAL ENTITIES LAUNCHED ON WORLD MARKET (1991–2010, BY NATIONALITY OF MOTHER COMPANY)
No other sector spends more on innovative

- The research-based pharmaceutical industry spends over USD 100 billion (EUR 75 billion) on R&D.

- Five of the 10 leading global R&D firms in 2010 were pharmaceutical companies, accounting for 19% of the R&D of the top 1,400 companies.
Medicines in Development

In the past 10 years alone, over 300 medicines have been approved.

Medicines prevent at least 3 million deaths from malaria and save 750,000 children from disability every year.

In 2010, IFPMA members had 102 ongoing R&D projects related to diseases of the developing world and contributed 75% of the R&D funding for tuberculosis, malaria and dengue.

Source: PhRMA 2011
Access to Medicines – A complex Picture

Health Care Systems

Infrastructure & Supply

Government Policies

Medicines
Access to Medicines: A Shared Objective

- Definition: timely availability, under varied physical and economic conditions, of quality drugs to patients in need
- Many inter-related factors determine access level:
  - Availability of financial resources
  - Government policies
  - Infrastructure conditions
  - Private and public sector insurance programs
  - Supply management
  - Manufacturing capacity
  - R&D decisions
## CRA Study on ARV Access: Main factors

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<thead>
<tr>
<th></th>
<th>Rwanda</th>
<th>India</th>
<th>Thailand</th>
<th>Brazil</th>
<th>Botswana</th>
<th>Mexico</th>
<th>South Africa</th>
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<tr>
<td><strong>Political will</strong></td>
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<td><strong>Overcoming stigma</strong></td>
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<td><strong>Domestic healthcare capacity</strong></td>
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<td><strong>International funding</strong></td>
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<td><strong>Negotiation and procurement</strong></td>
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<td><strong>Generic manufacturers</strong></td>
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<td><strong>Partnerships</strong></td>
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*** represent a significant factor in raising access to the current level,
* represent a minor factor in raising access to the current level

Source: CRA
Hidden costs of pharmaceutical procurement

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<thead>
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<th>Sri Lanka</th>
<th>Kenya</th>
<th>Tanzania</th>
<th>South Africa</th>
<th>Brazil</th>
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<th>Kosovo</th>
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<td>1%</td>
<td>4%</td>
<td>4%</td>
<td>5%</td>
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<td>Port charges</td>
<td>4%</td>
<td>8%</td>
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<td>Clearance and freight</td>
<td>1%</td>
<td>2%</td>
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<td>1.5%</td>
<td>5%</td>
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<td>Pre-shipment inspection</td>
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<td>Pharmacy board fee</td>
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<td>2%</td>
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<td>Importers' margins</td>
<td>25%</td>
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<td>VAT</td>
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<td>State govt. tax</td>
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<td>Wholesaler</td>
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<td>0%</td>
<td>21.2%</td>
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<td>10%</td>
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<td>Retail</td>
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<td>20%</td>
<td>50%</td>
<td>50%</td>
<td>22%</td>
<td>25%</td>
<td>25%</td>
<td>16%</td>
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<tr>
<td>Total markup</td>
<td>63.9%</td>
<td>54.2%</td>
<td>74.3%</td>
<td>74%</td>
<td>82.3%</td>
<td>87.5%</td>
<td>73.6%</td>
<td>48%</td>
<td>53.6%</td>
<td>68.6%</td>
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</table>
Access to Medicines – A complex Picture

Treatments donated and sold at cost in developing countries

![Chart showing treatments donated and sold at cost from 2000 to 2009.](chart.png)
Treatments donated and sold at cost in developing countries
(USD estimation)
Number of Partnerships Continues to Grow

![Bar chart showing the growth of partnerships from 2006 to 2010.](chart)

- 2006: 64 partnerships
- 2007: 135 partnerships
- 2008: 155 partnerships
- 2009: 202 partnerships
- 2010: 213 partnerships
Launched March 2011

Highlights experience of the R&D based industry in the area of technology transfer

More than 50 case studies showcasing IFPMA’s Members work

Also includes policy recommendations and conclusions

Provides insight into the factors influencing technology transfer in the pharmaceutical sector
Conclusions

- Innovation is increasingly multidimensional and is continually evolving in the areas of R&D, Diagnostics, Production, Supply Chains and Access
- All the pieces if the access picture must be in place to achieve access and industry keen to play an active role
- Multifaceted collaborations are become the norm for the health-care industry who are constantly adapting and aligning business objectives to meet societal needs