

The role of innovation and pharmaceuticals in health

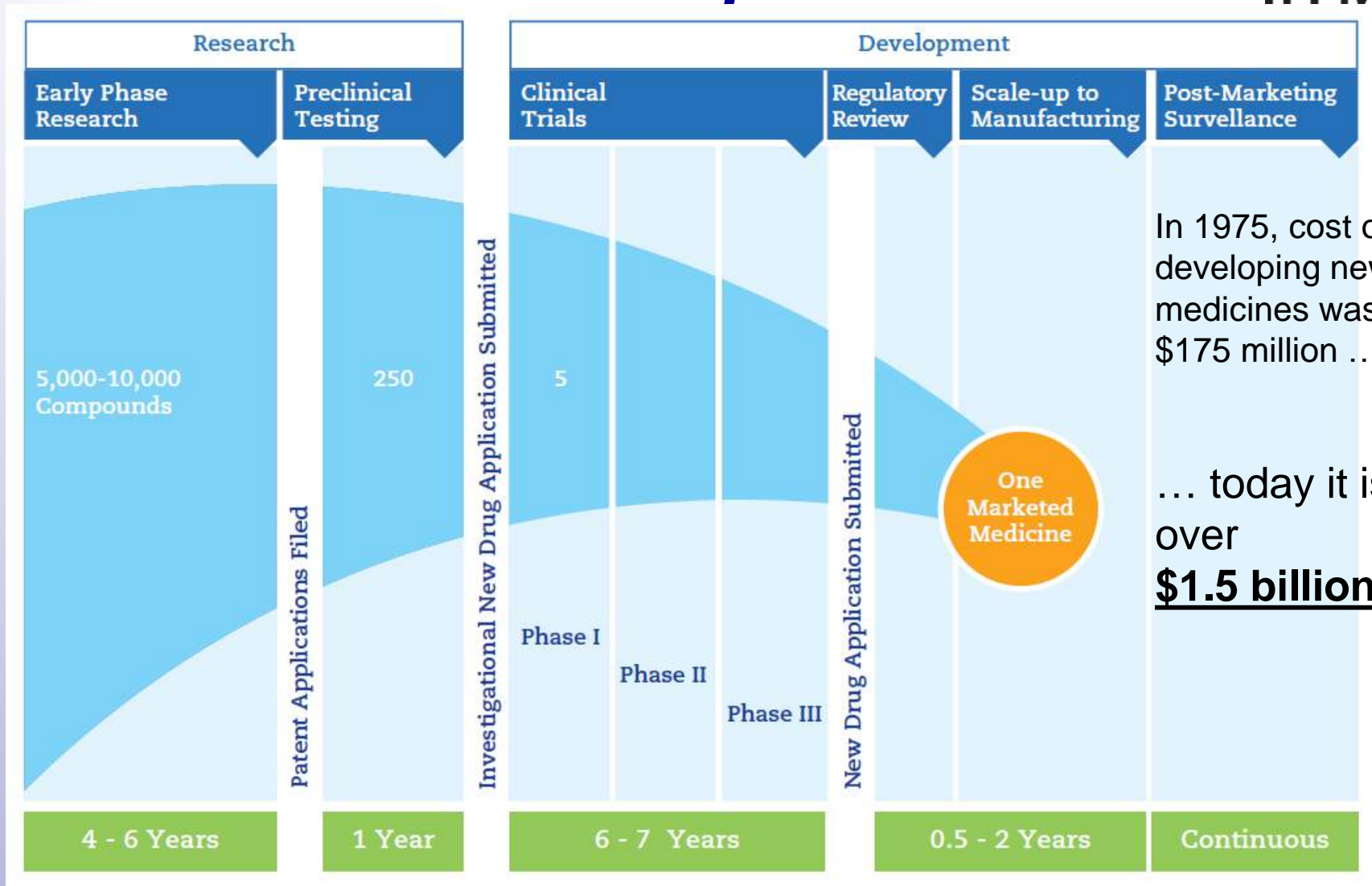
Presentation to AMIIF Health Innovation Week – ‘Health and Productivity’, Mexico City
6-7 April 2016

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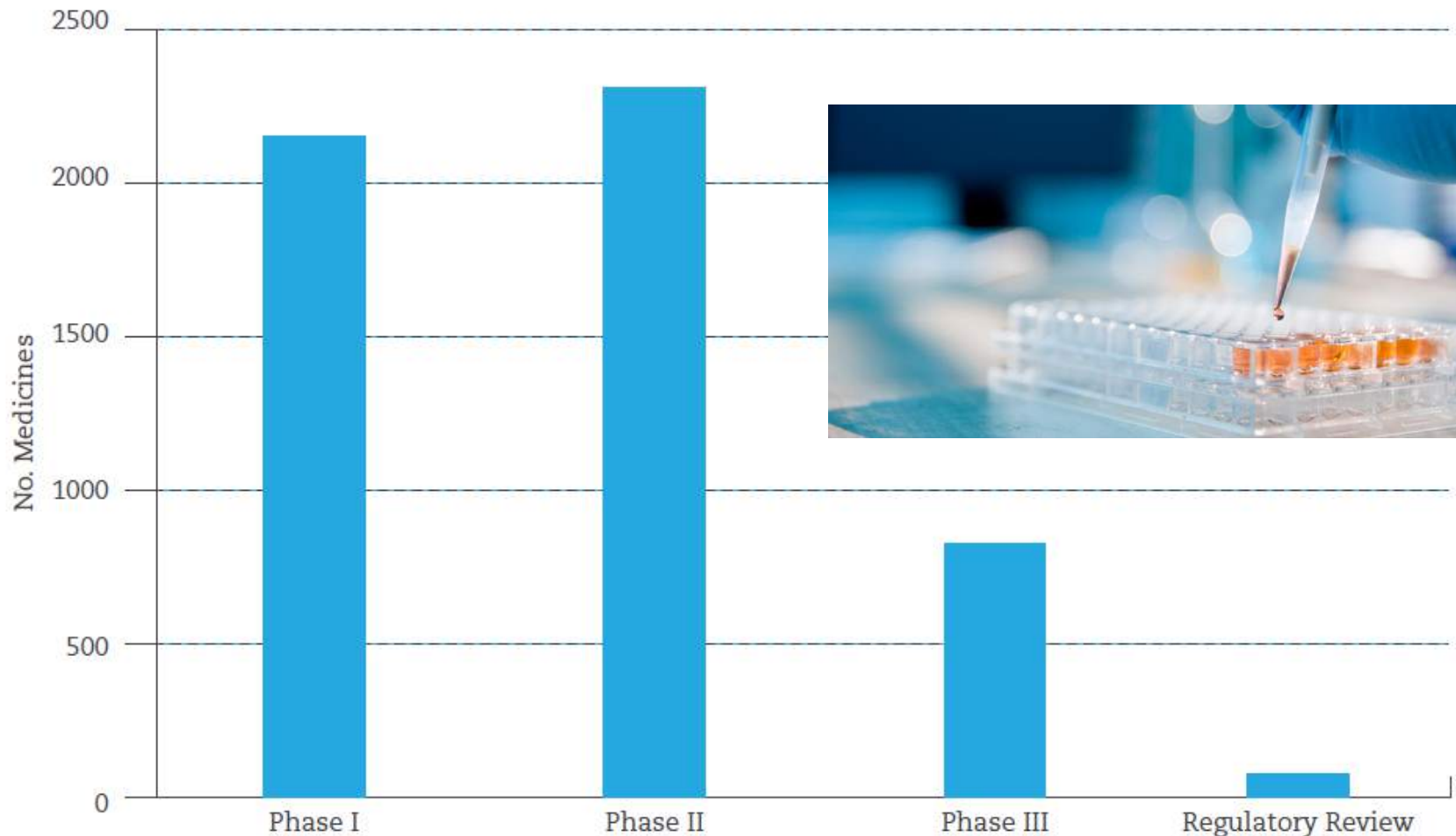
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Pharmaceutical R&D process





Number of medicines in development IFPMA





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Medicines in development (selected categories)

INFECTIOUS
DISEASES

1,256

CANCER

1,813

CARDIOVASCULAR

599

IMMUNOLOGY

1,120

HIV/AIDS

159

DIABETES

475

NEUROLOGY

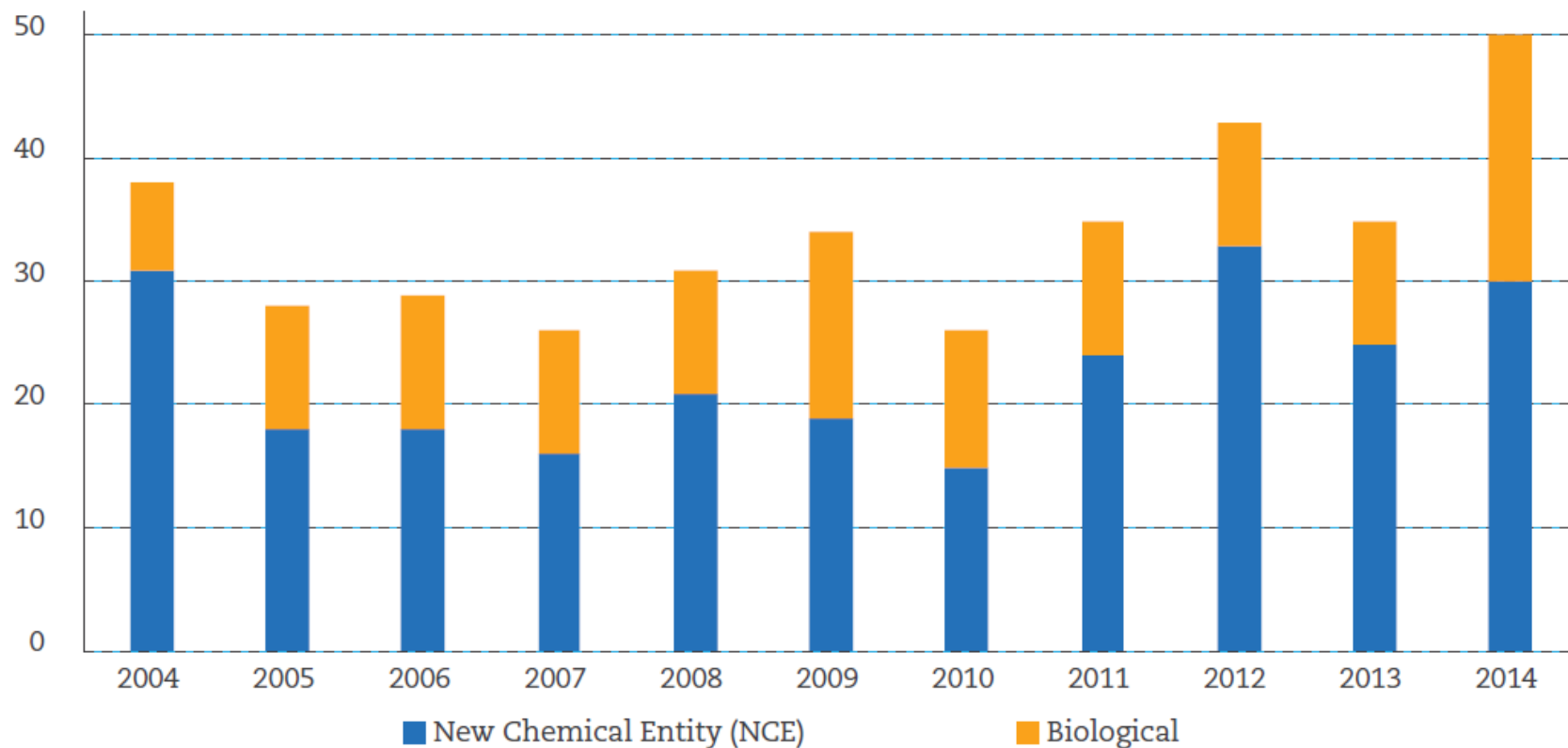
1,329

MENTAL
DISORDERS

511



New Chemical and Biological Entities Approved by the US FDA



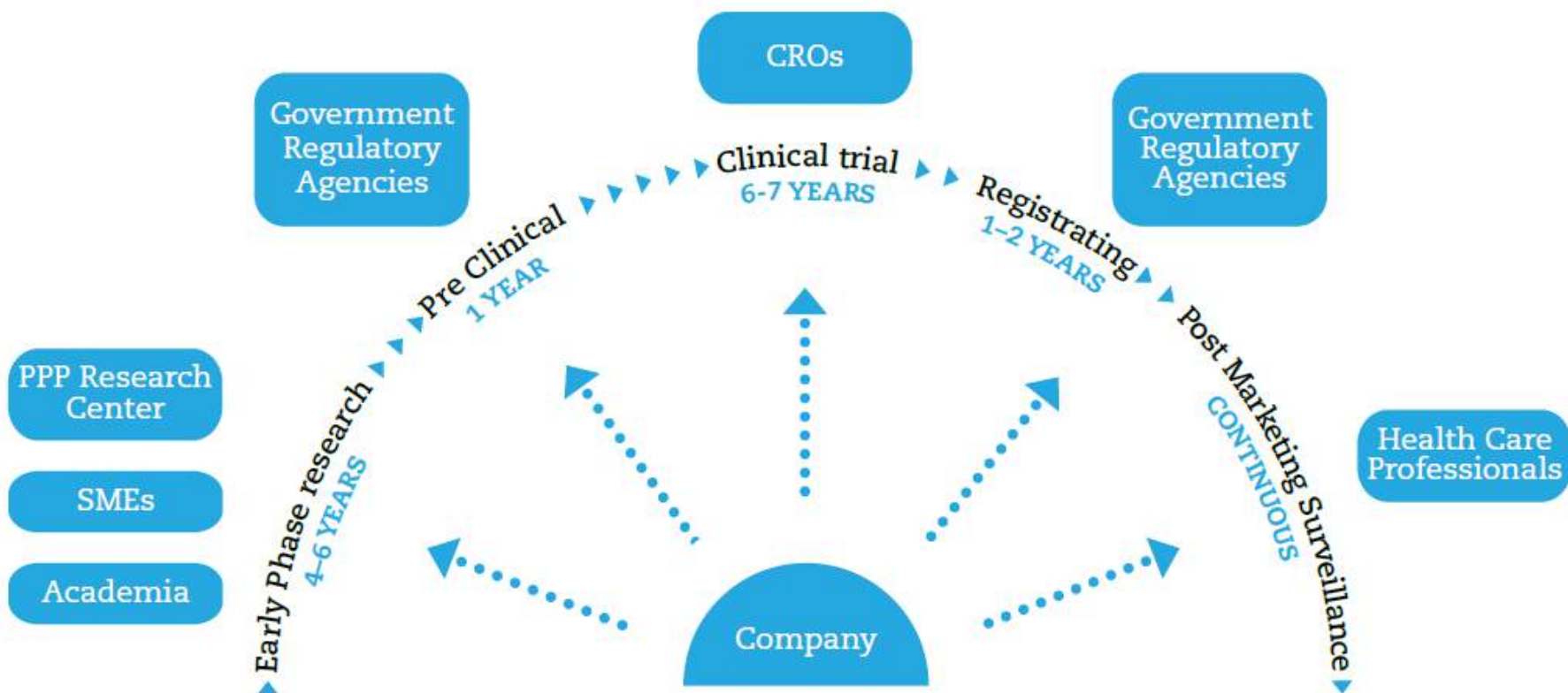
Clinical trial protocol complexity



	2000-2003	2008-2011	% CHANGE
Total Procedures per Trial Protocol (median) (e.g., bloodwork, routine exams, x-rays, etc.)	105.9	166.6	57%
Total Investigative Site Work Burden (median units)	28.9	47.5	64%
Total Eligibility Criteria	31	46	48%
Clinical Trial Treatment Period (median days)	140	175	25%
Number of Case Report Form Pages per Protocol (median)	55	171	211%

Developing the next generation of medicines and vaccines is becoming more complex and costly.

Pharmaceutical R&D networks



Enabling factors for pharma innovation

EARLY STAGE RESEARCH

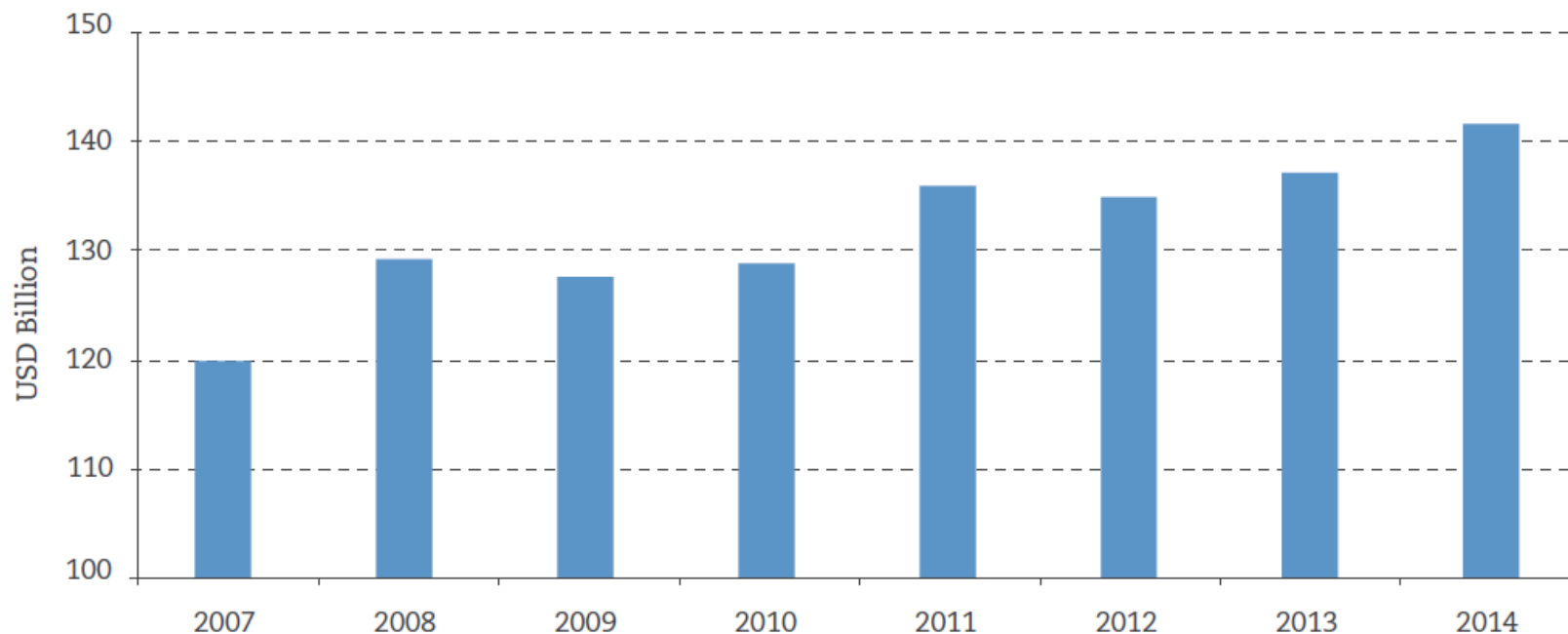
- World class research institutions
- Highly trained workforce (retained or attracted back to the country)
- Clusters of innovative companies providing support on core technologies (high throughput screening, gene sequencing etc.)
- Partnership encouraging environment

CLINICAL TRIALS

- Efficient regulatory system for appraising clinical trials design
 - Supportive and well-regulated system for enrolment
 - Strong medical schools and clinicians for designing
 - Managing and reporting trials design
 - Growing market receptive to innovation
-

Applies to middle income countries also.

Pharmaceutical R&D spending



Globally, the industry is estimated to have spent \$141.6 billion on R&D in 2014.



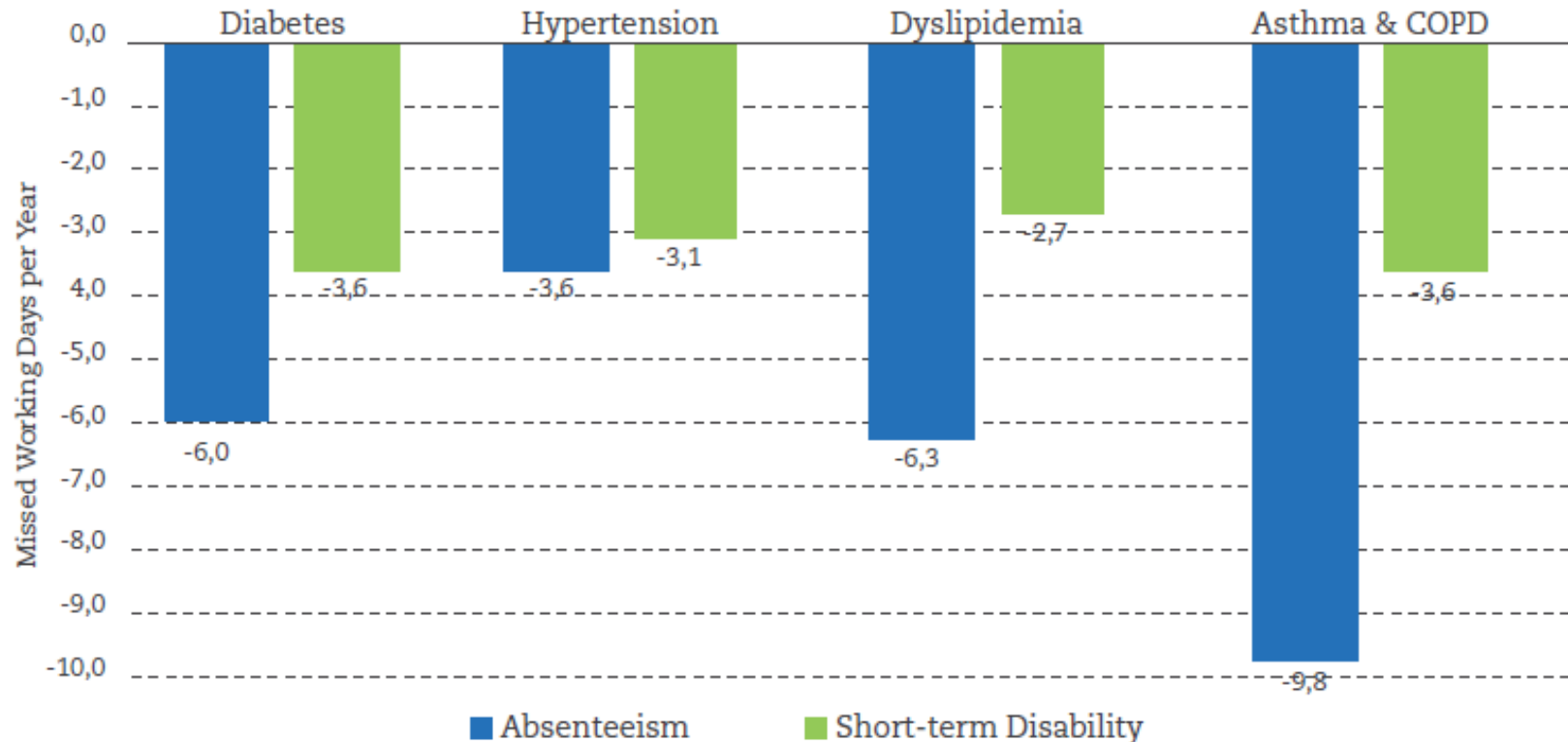
Pharma R&D and impact on health

- Medical discoveries, big and small, have increased life expectancy and resulted in a better quality of life for many
- Vaccines save the lives of over 2.5 million children each year
- Between 2000 and 2013, immunization campaigns cut the number of deaths caused by measles by 75%
 - with a reduction of 92% in Africa between 2000 and 2008
- Since 1928, scientists have discovered and developed 19 classes of antibiotics
 - currently, 34 new antibacterial compounds are in development of which 15 are vaccines and 19 small and large molecules
- With the help of major medical discoveries, the research-based pharmaceutical industry has developed more than 35 antiretroviral treatments for HIV/AIDS, essential to control of the epidemic
- Death rates for HIV/AIDS in the United States have fallen from 16.2 deaths per 100,000 people in 1995 to 2.1 deaths per 100,000 people in 2013, a reduction of 87%
- Number of AIDS-related deaths worldwide peaked at 2.5 million in 2005 and has since fallen to an estimated 1.5 million deaths in 2013
 - largely attributed to the introduction of new antiretroviral therapies (ARTs) combined with more patients being provided with treatment

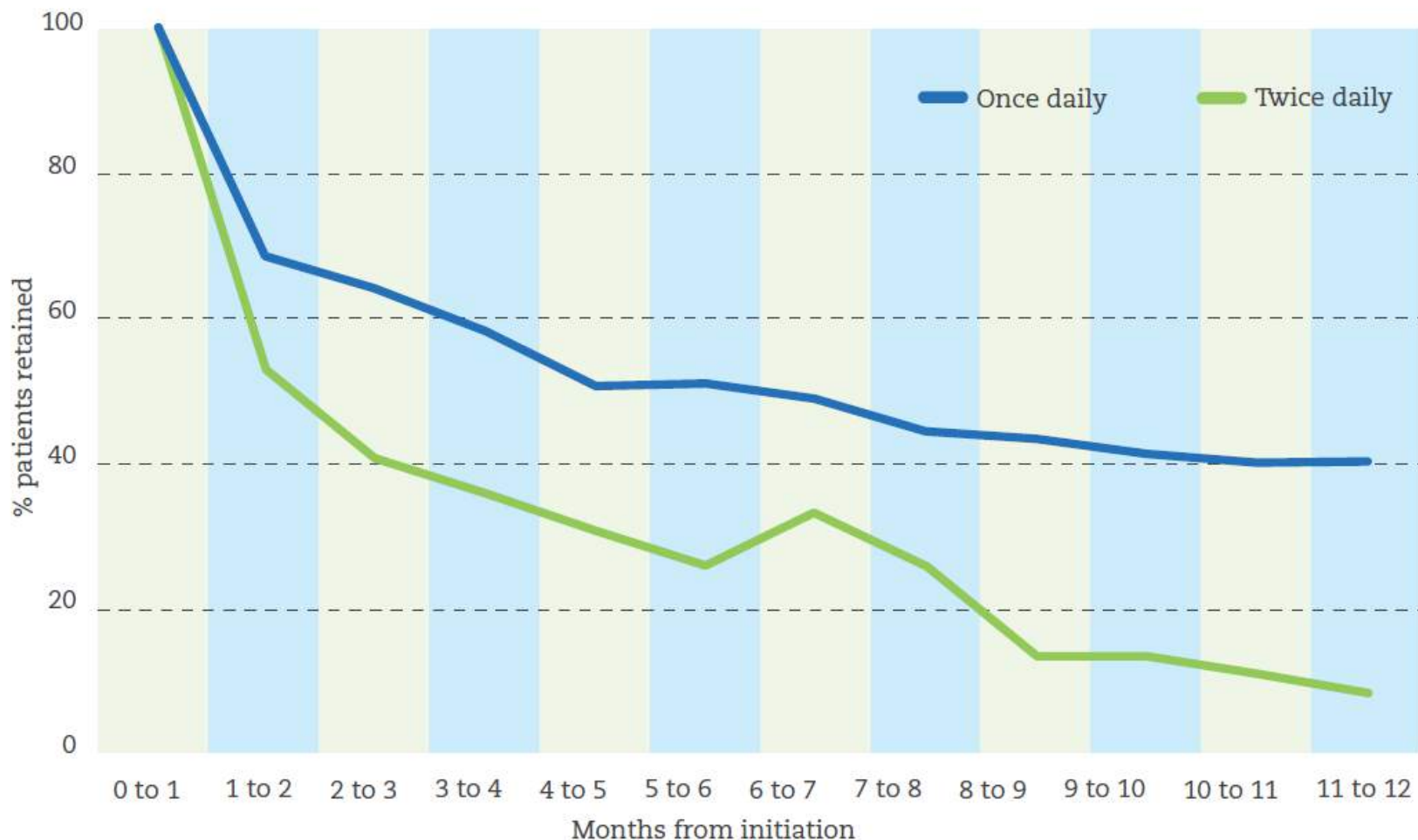
Pharma R&D saves health costs

- If diagnosed early, leukemia can be driven into remission with a once-daily treatment
- High cholesterol and other cardiovascular diseases, which required extensive treatment in the 1970s, can now be easily managed with oral therapy
- Improvements in existing cancer treatments have cut annual death rates by half
- For every USD 1 spent on childhood vaccination in the United States saves USD 10.20 in disease treatment costs
- For every USD 1 spent on new medicines for congestive heart failure in the United States saves USD 8.39 in medical spending

Improving adherence to medicines increases productivity



Reducing Number of Formulations per Day Increases Percentage of Diabetes Patients Retained on Treatment



Value of Innovation - Evidence-based Advocacy



- ❑ New Frontiers of Innovation
- ❑ Policies which Encourage an Innovation Ecosystem (CRA)
- ❑ Adapting to Patient Needs through Incremental Innovation
- ❑ Pharmaceutical Industry: Facts & Figures
- ❑ Pharmaceutical R&D Projects for NTDs
- ❑ Assessing the Value of Innovation (CRA)
- ❑ Measuring the Global Economic Footprint of the Industry (WifOR)
- ❑ Value Chain (IMS Institute)



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