



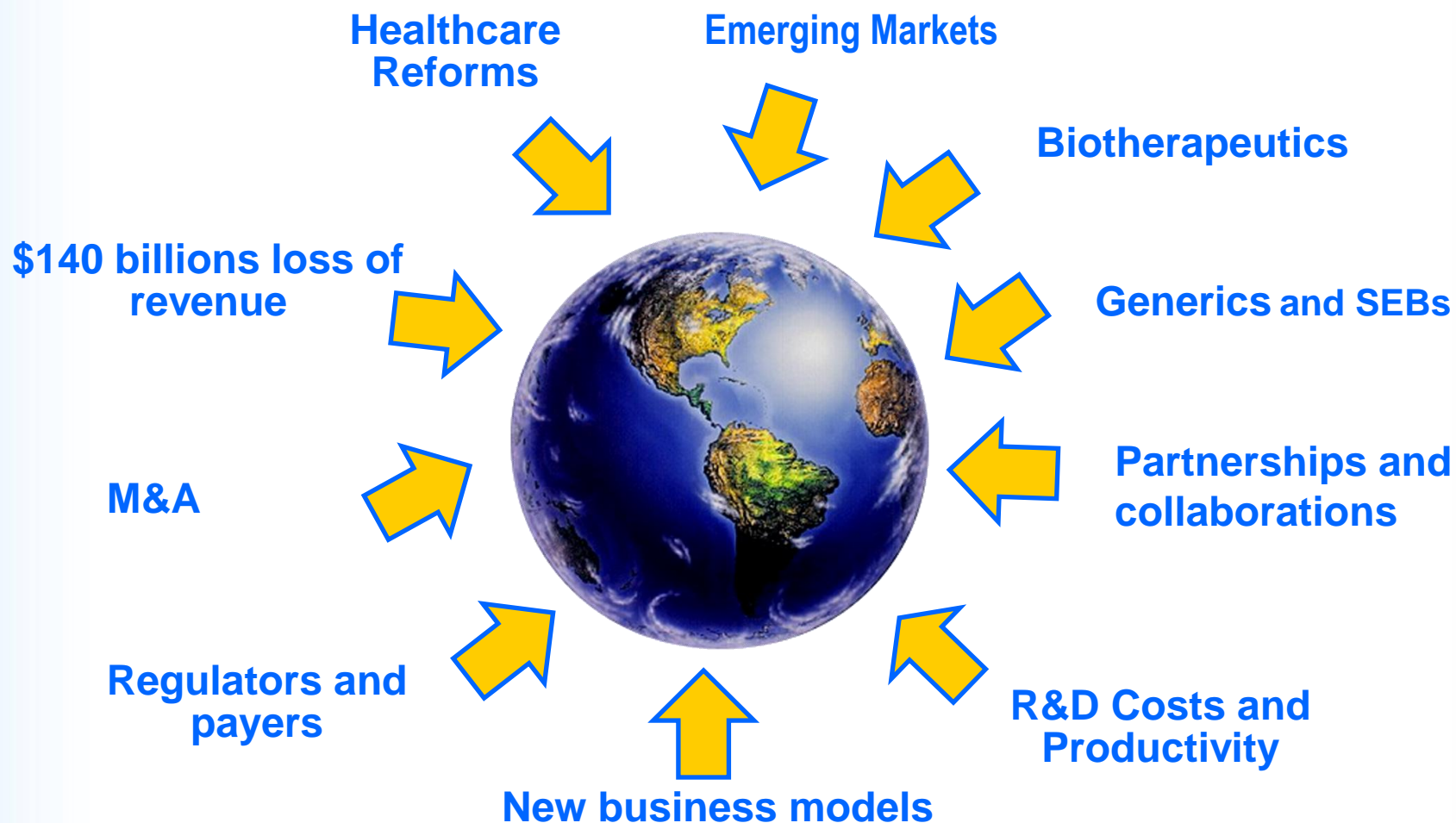
# **Economics and Innovation in Healthcare: A Biopharmaceutical Perspective**

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**Dr. Bernard Prigent**

**April 22, 2010**

# Biopharma and Innovation



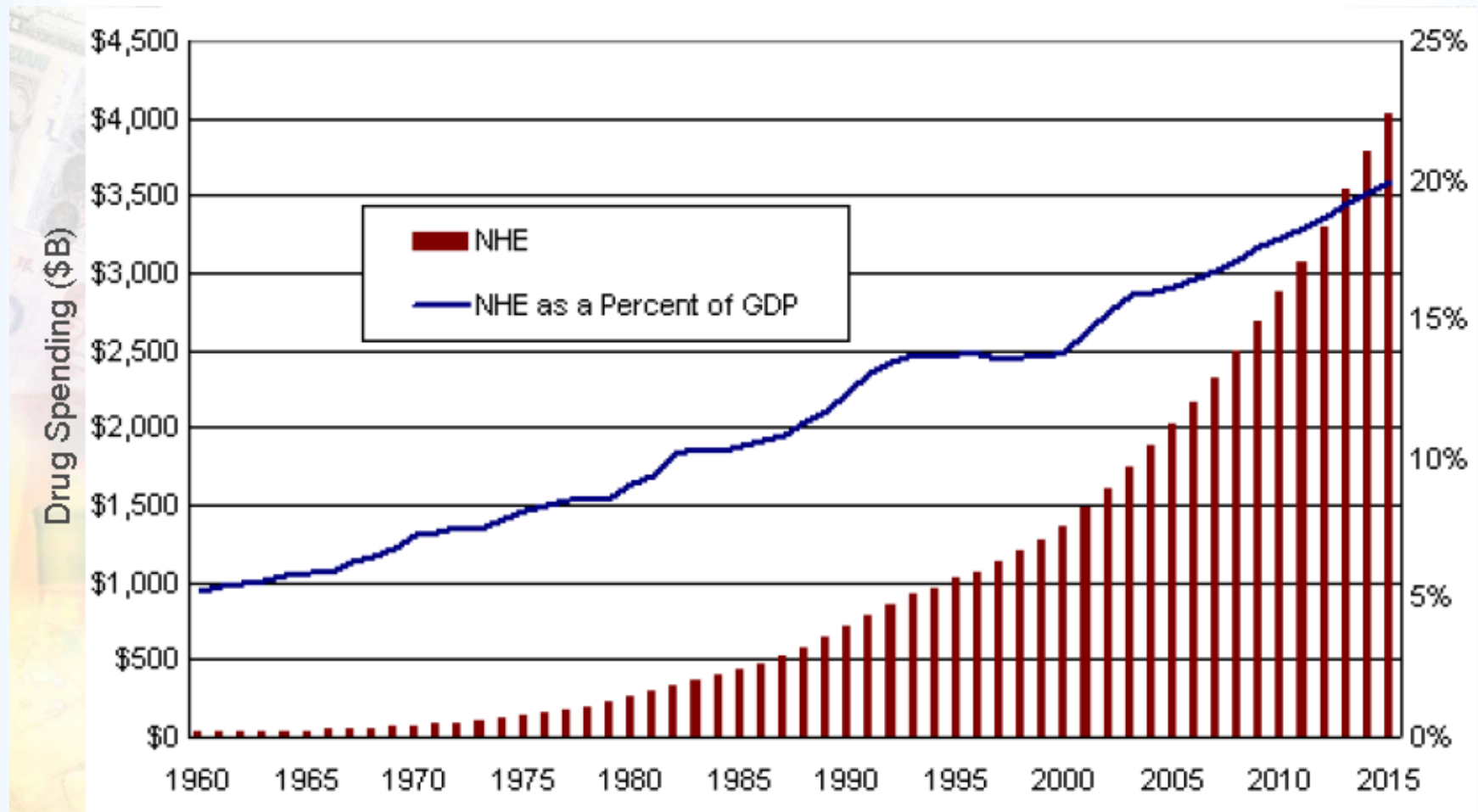
# Innovation Gap Getting Wider

## INNOVATION GAP

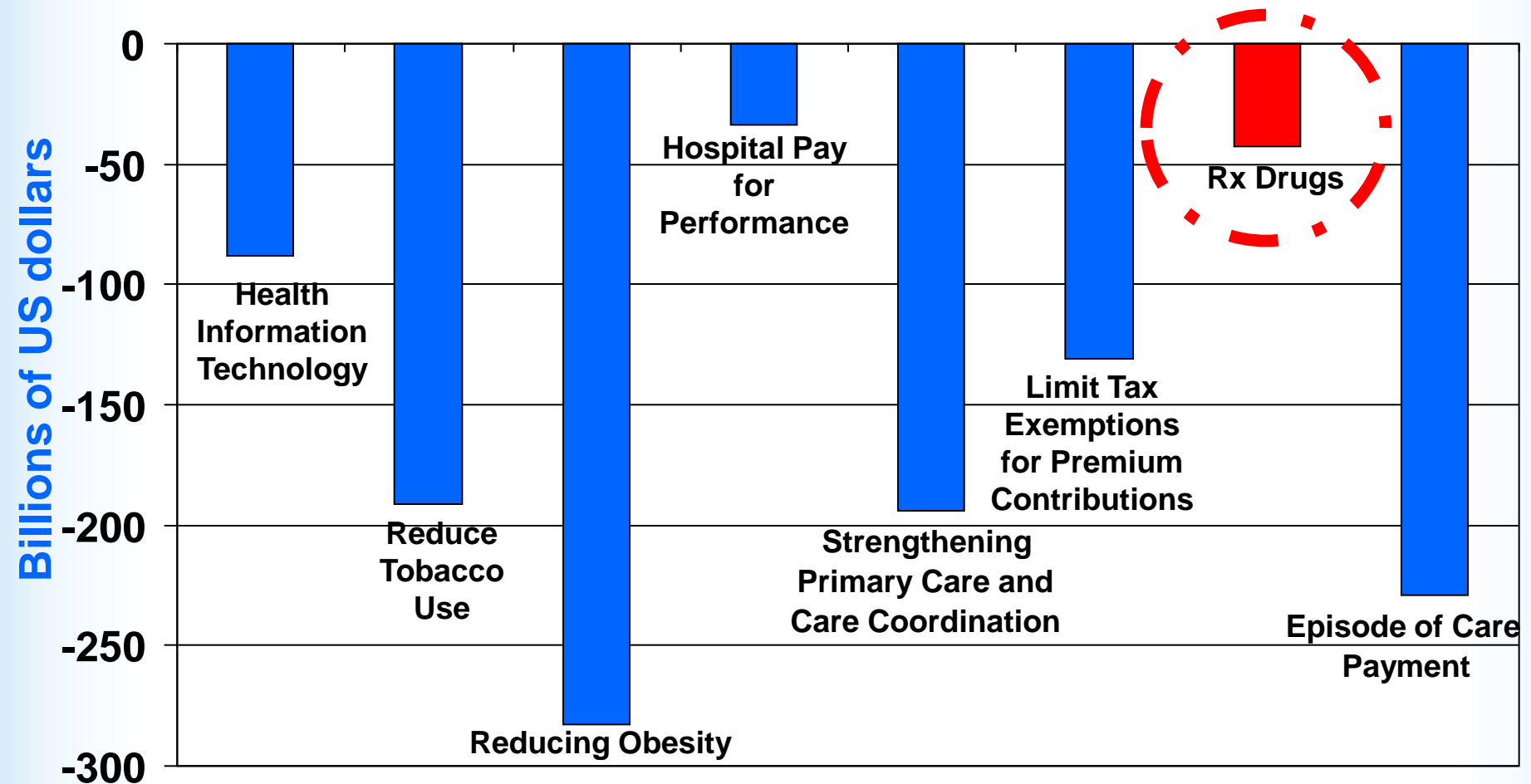


Source: Burrill & Company, US Food and Drug Administration

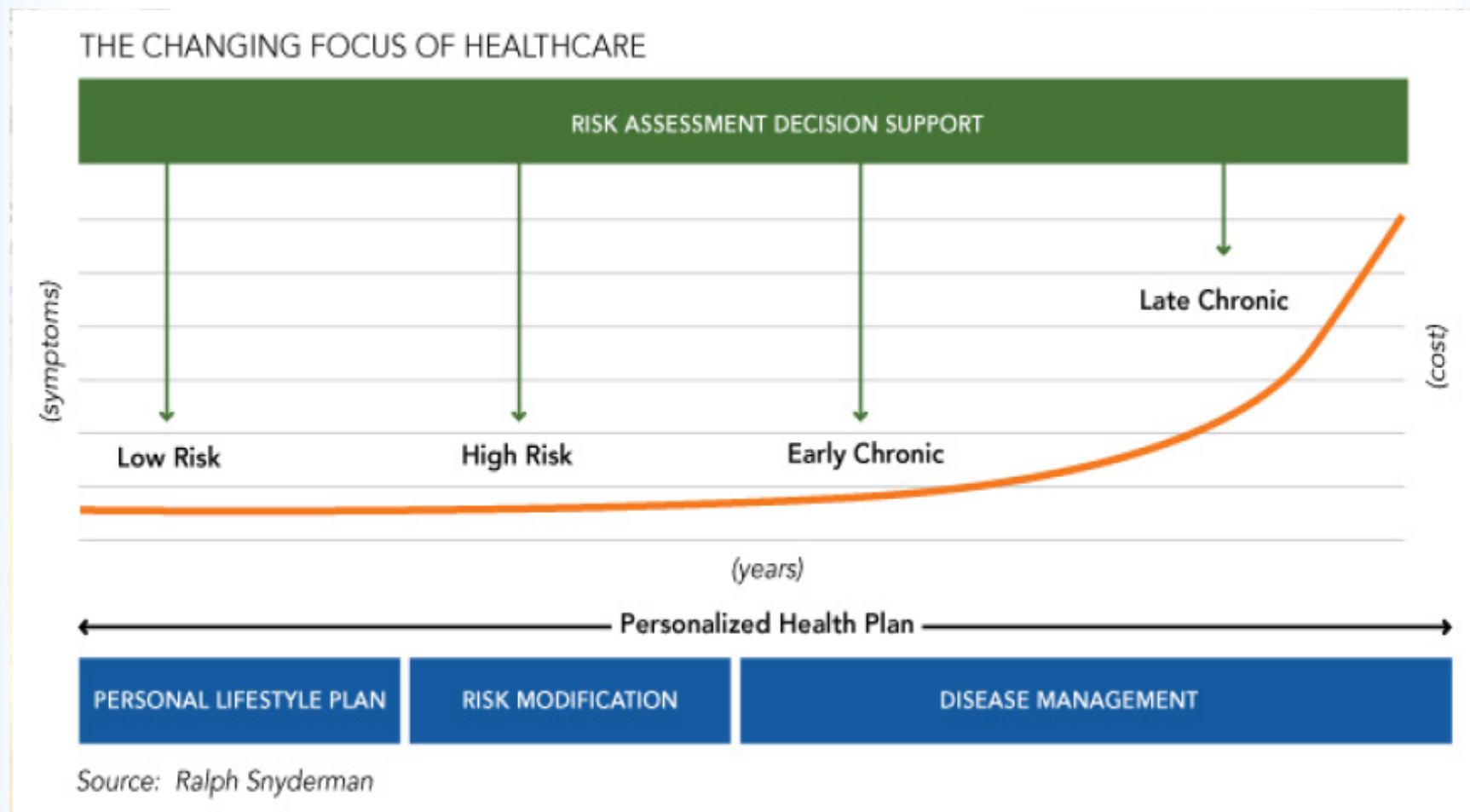
# The Rising Cost of Healthcare



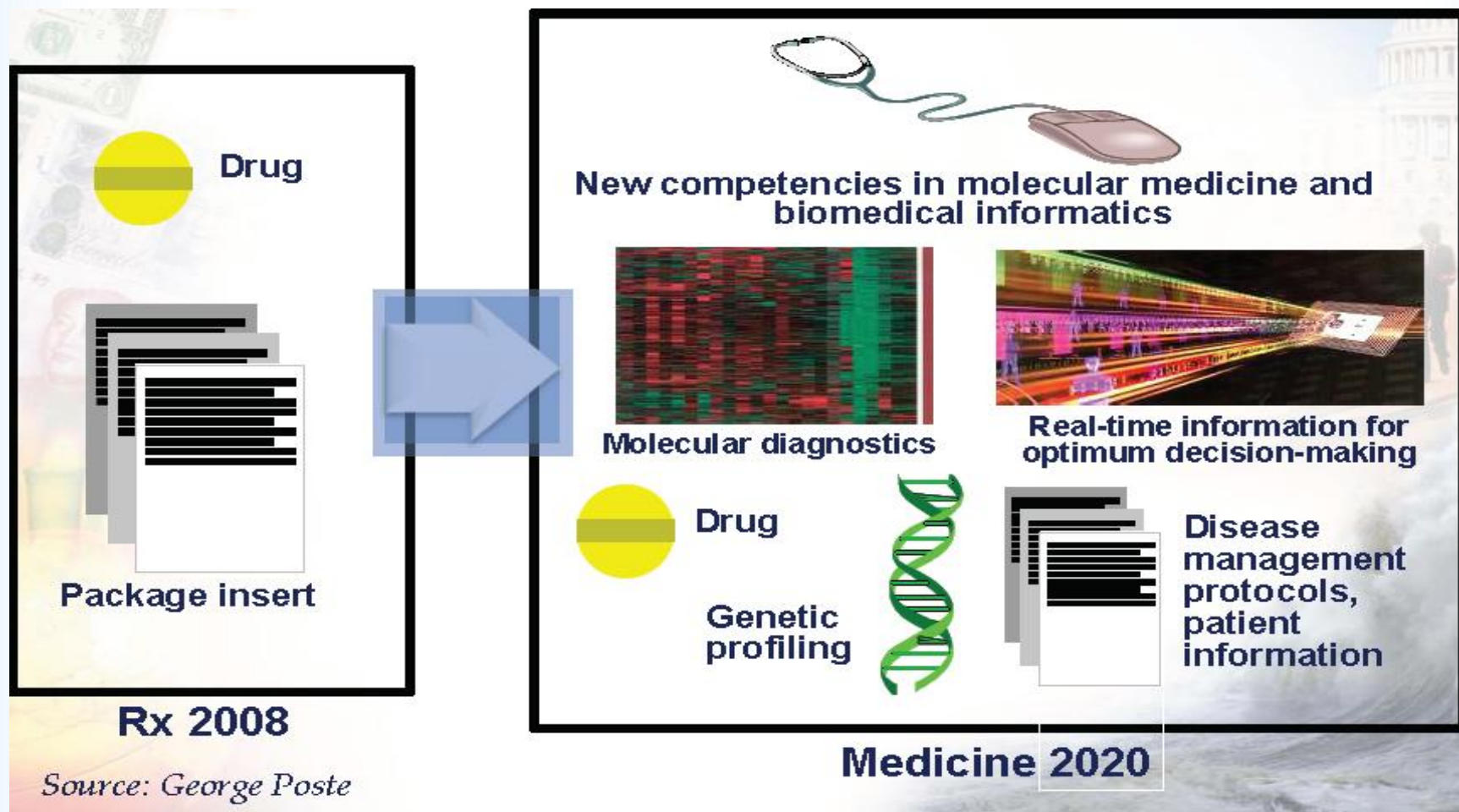
# Policy Options and Distribution of 10-Year Impact on Spending



# The Changing Focus of Healthcare



# Convergence of Technologies : Rational Care and Personalized Medicine



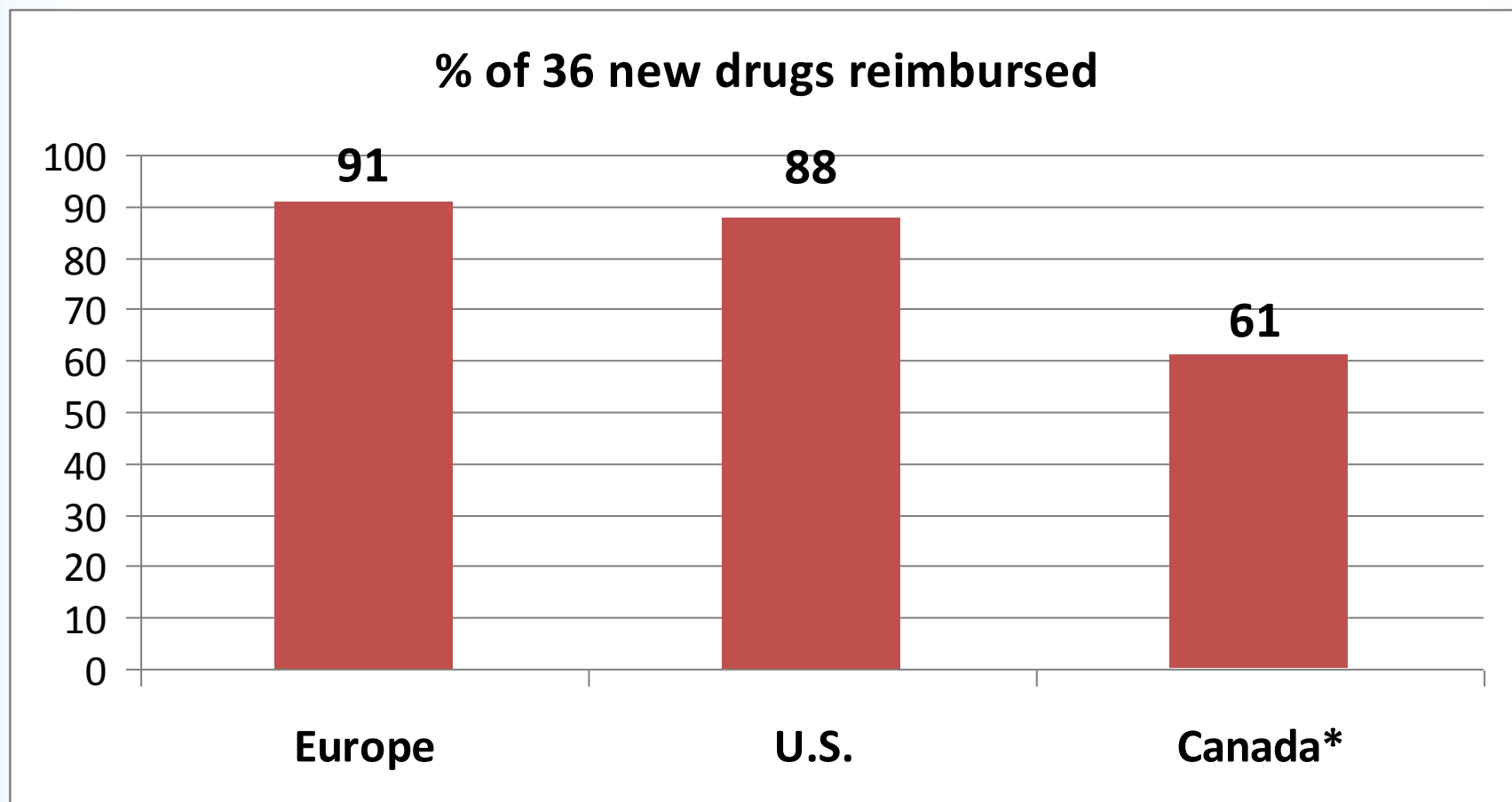


# What are we expecting from PM ?

- Shift emphasis in medicine from reaction to prevention
- Enable selection of optimal therapy and reduce trial-and-error prescribing
- Make the use of drugs safer by avoiding adverse drug reactions
- Increase patient compliance with treatments
- Reduce the time and cost of clinical trials
- Revive drugs that are failing in clinical trials or are withdrawn from the market
- Reduce the overall cost of healthcare



# The Right Attitude Toward Innovation ?



\* In Canada, % recommended for reimbursement only;  
not necessarily reimbursed by any or all provinces

**The Value of Innovation :**  
***Do we have the right metrics?***

# Cost and Value of Medicine

$$\frac{\text{Cost Tx2} - \text{Cost Tx1}}{\text{Efficacy Tx2} - \text{Efficacy Tx1}} = \text{C/E Ratio}$$

PRICE of the medicine

**Cost Txn** = Includes all direct (Rx, tests, MD visits, hospitalizations, events, side effects, etc) and sometimes indirect costs (loss of productivity, caregiver time) of treatment

## Efficacy:

- surrogate marker: ie LDL
- Life year saved (LY)
- Quality adjusted Life Year (QALY)

# Price of Medicine

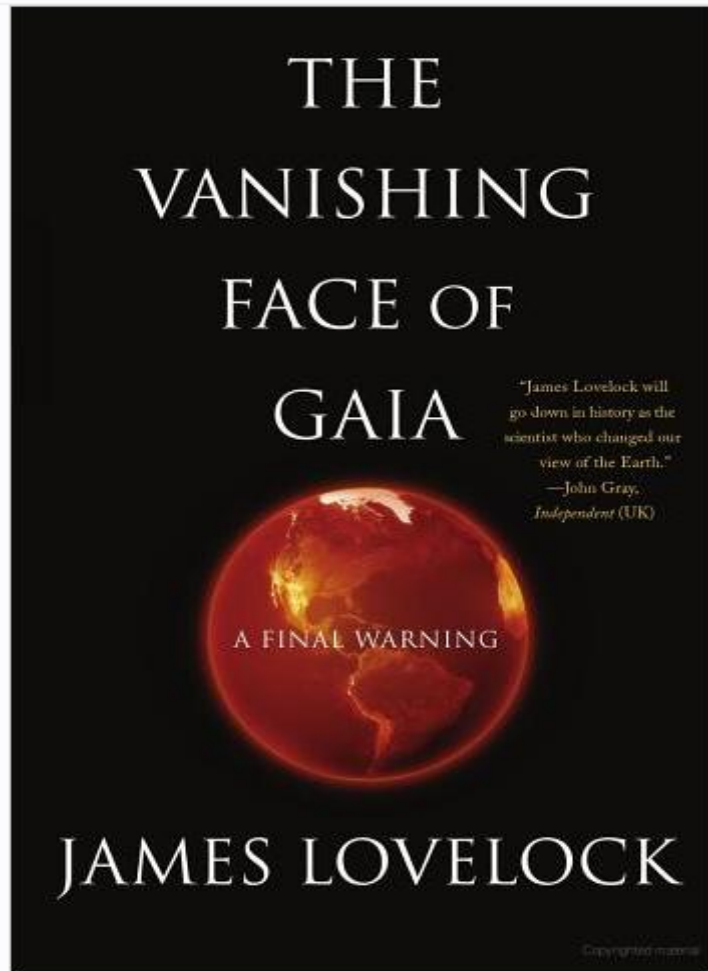
**Revenue** = Patient Population X **Price** X Exclusivity Time on the Market

**Recoup R&D costs + Profit +  
Future Research**

1) PMPRB

2) Global Pfe Guidelines

# Economics and Innovation in Healthcare Looking at Complexity Holistically



***« ... climate forecasters are obliged to model atmospheric physics where they should be modelling the whole Earth system of which the climate is one property. »***

# Biopharmaceutical, Innovation and Health

- **“Ways need to be found to develop partnerships that link researchers, industry, governments, policy makers, and health system managers so that the fruits of innovation are quickly and appropriately taken into health systems and reach those that need them”.**

**Organisation for Economic Co-operation and Development**