

Cost/QALY:

« A » perspective of « one » industry
representative

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

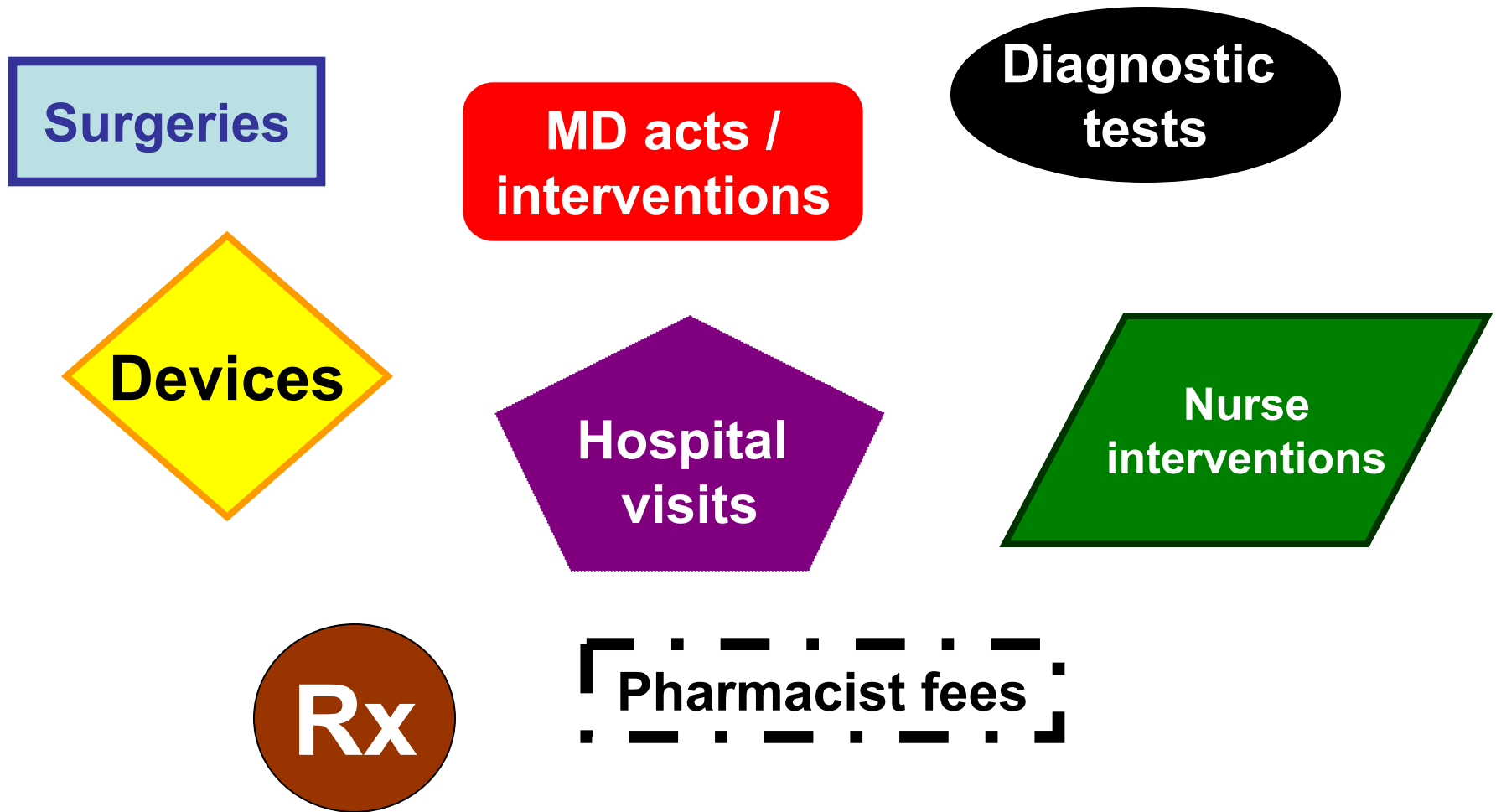
Cost Txn = Includes all **direct (Rx, tests, MD visits, hospitalizations, events, side effects, etc)** and sometimes **indirect costs (loss of productivity, caregiver time)** of treatment

Efficacy:

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

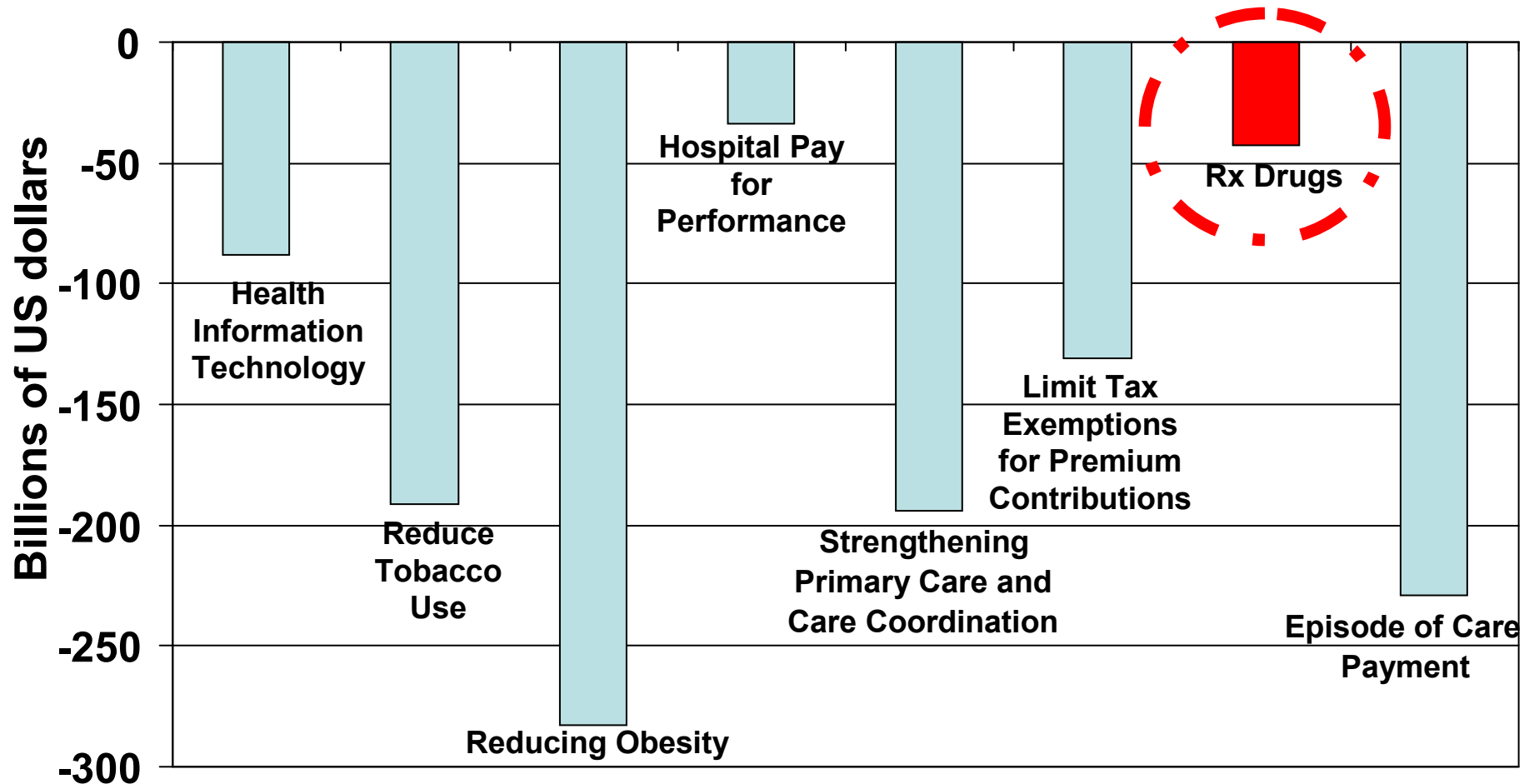
Are we assessing the cost/QALY
of all components of the health
care system?

Are we assessing appropriately all elements of the healthcare system?



Policy Options and Distribution of 10-Year Impact on Spending

Focusing only on Rx Drugs may not provide the biggest savings for the healthcare system

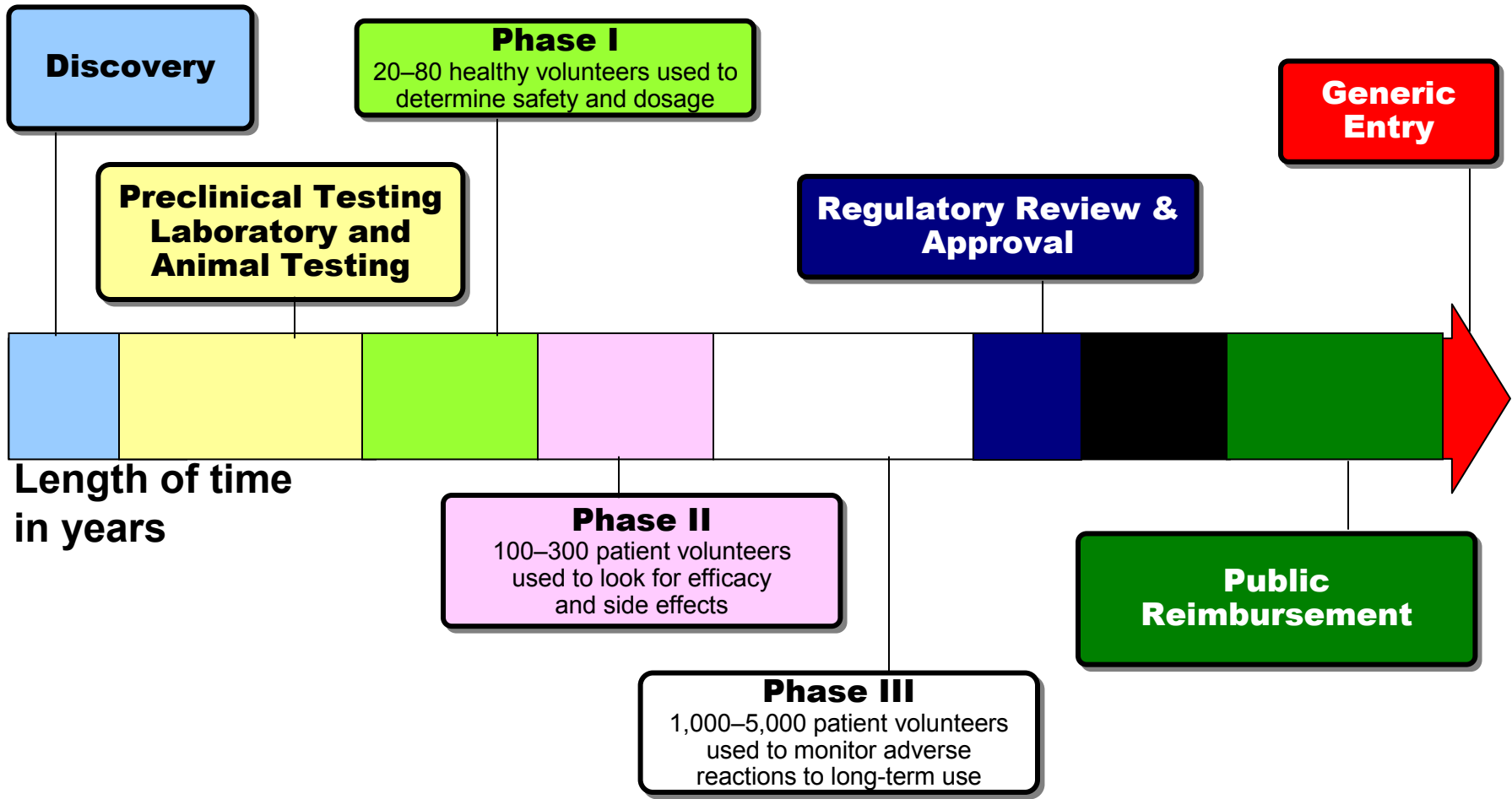


Price

What factors impact pricing

- Recouping investment costs + making a reasonable profit
- PMPRB
- Optimizing reimbursement...

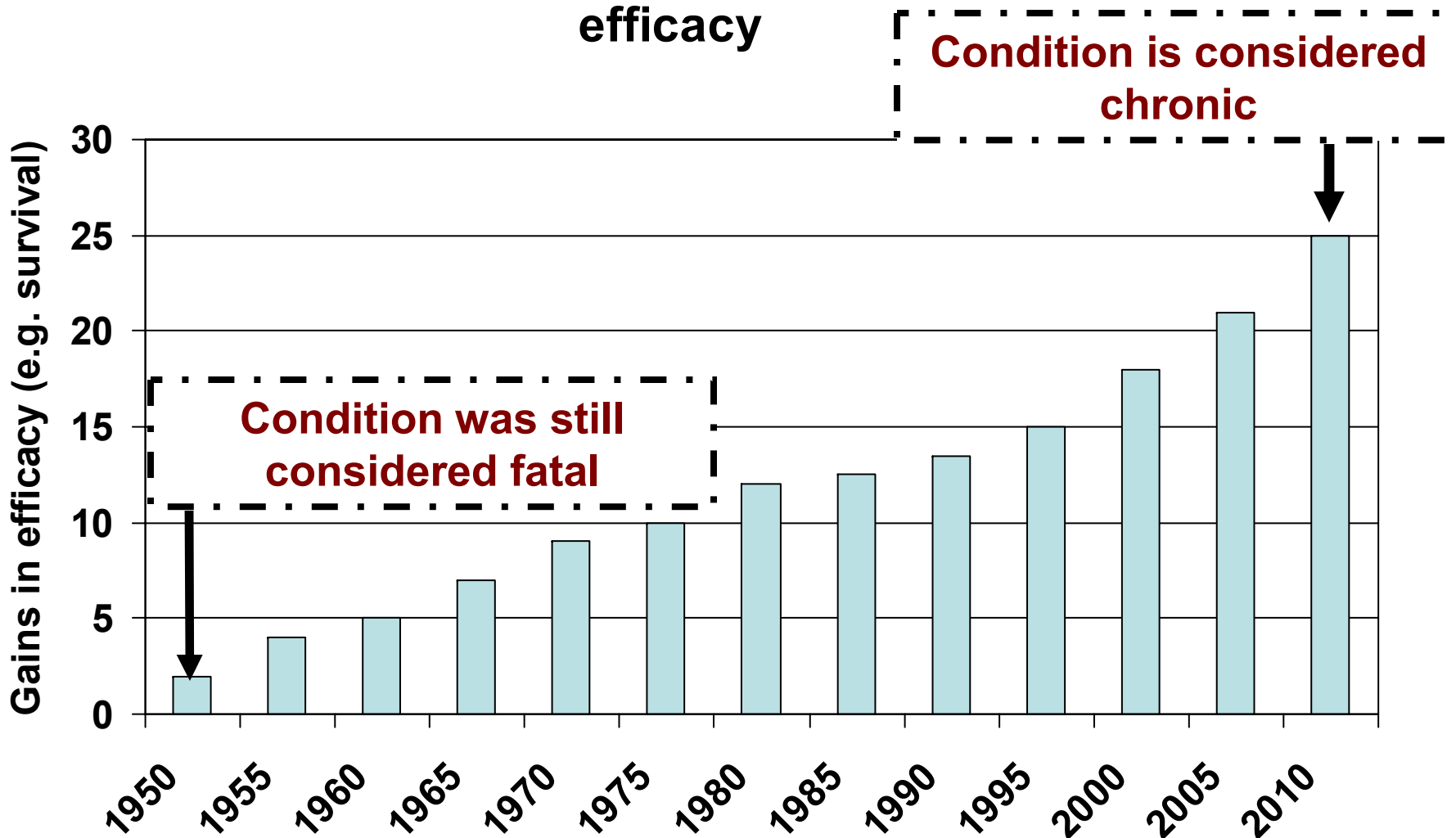
20 yrs of patent life – 12 yrs research pre-approval – 1 yr regulatory review - 2 years pre-reimbursement² =
about 5 years of real market exclusivity



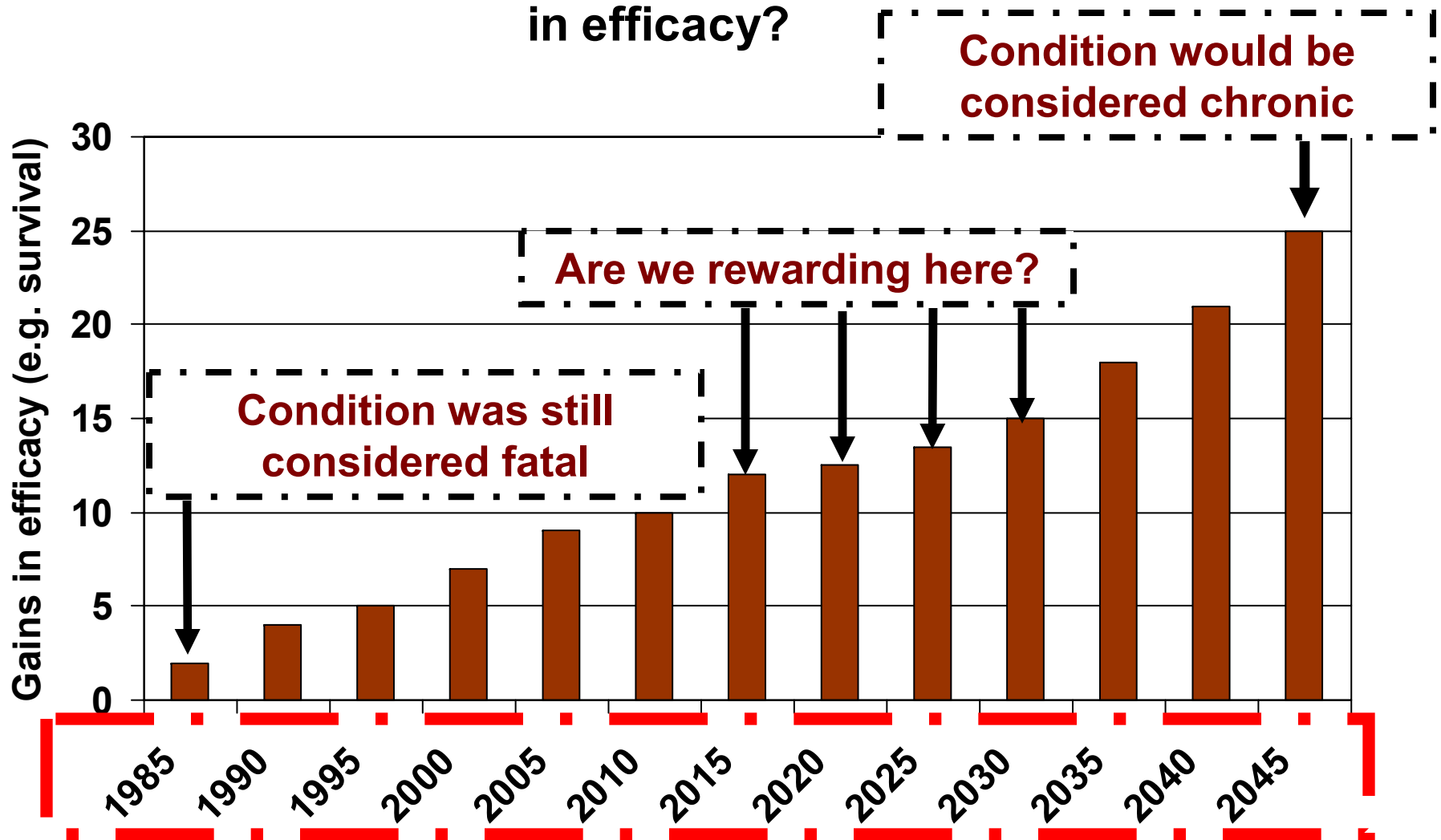
Sources: 1) Increased Length and Complexity of the Research and Development Process. Chapter 1 in: *PhRMA Pharmaceutical Industry Profile 2003*. 2) DiMasi, JA, Hansen, RW, Grabowski, HG. The Price of Innovation: new estimates of drug development costs. *Journal of Health Economics*. 2003; 22:151-185. 2) Wyatt Management Consulting Inc. 2008 (duration to public listing from NOC)

Are we « still » rewarding incremental gains in efficacy?

Old Model: Acceptance of incremental gains in efficacy

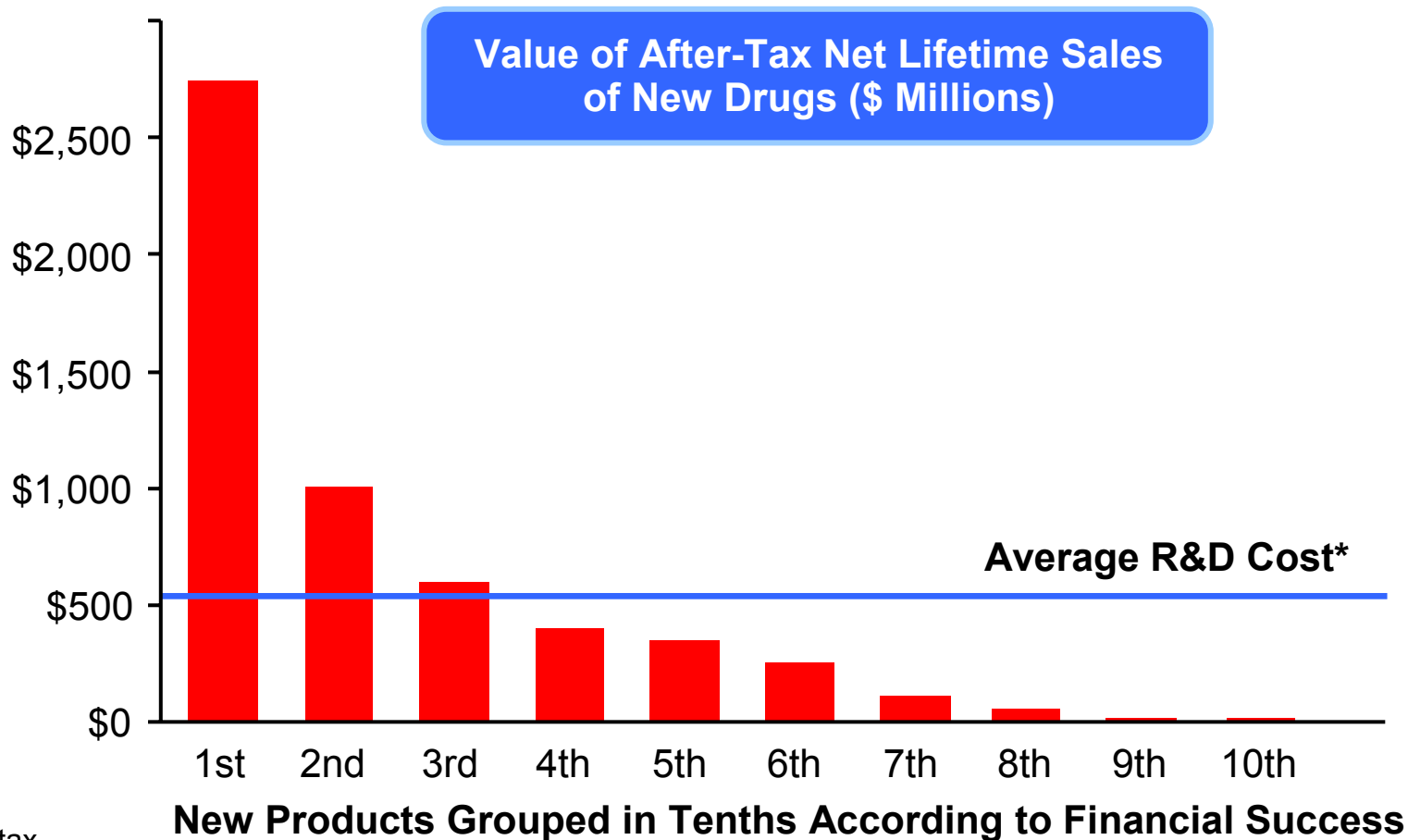


New Reality: How do we view incremental gains in efficacy?



Are we rewarding risk that the pharmaceutical research industry takes?

Ongoing Research Investment Depends on Returns for only a Handful of Successful Products



•After tax

Source: Grabowski H, Vernon J, DiMasi J. Returns on Research and Development for 1990s New Drug Introductions. *Pharmacoeconomics*. 2002; 20.

Sometimes, we should consider other factors than ICERs.... Such as good judgement....

The ICER paradoxe*

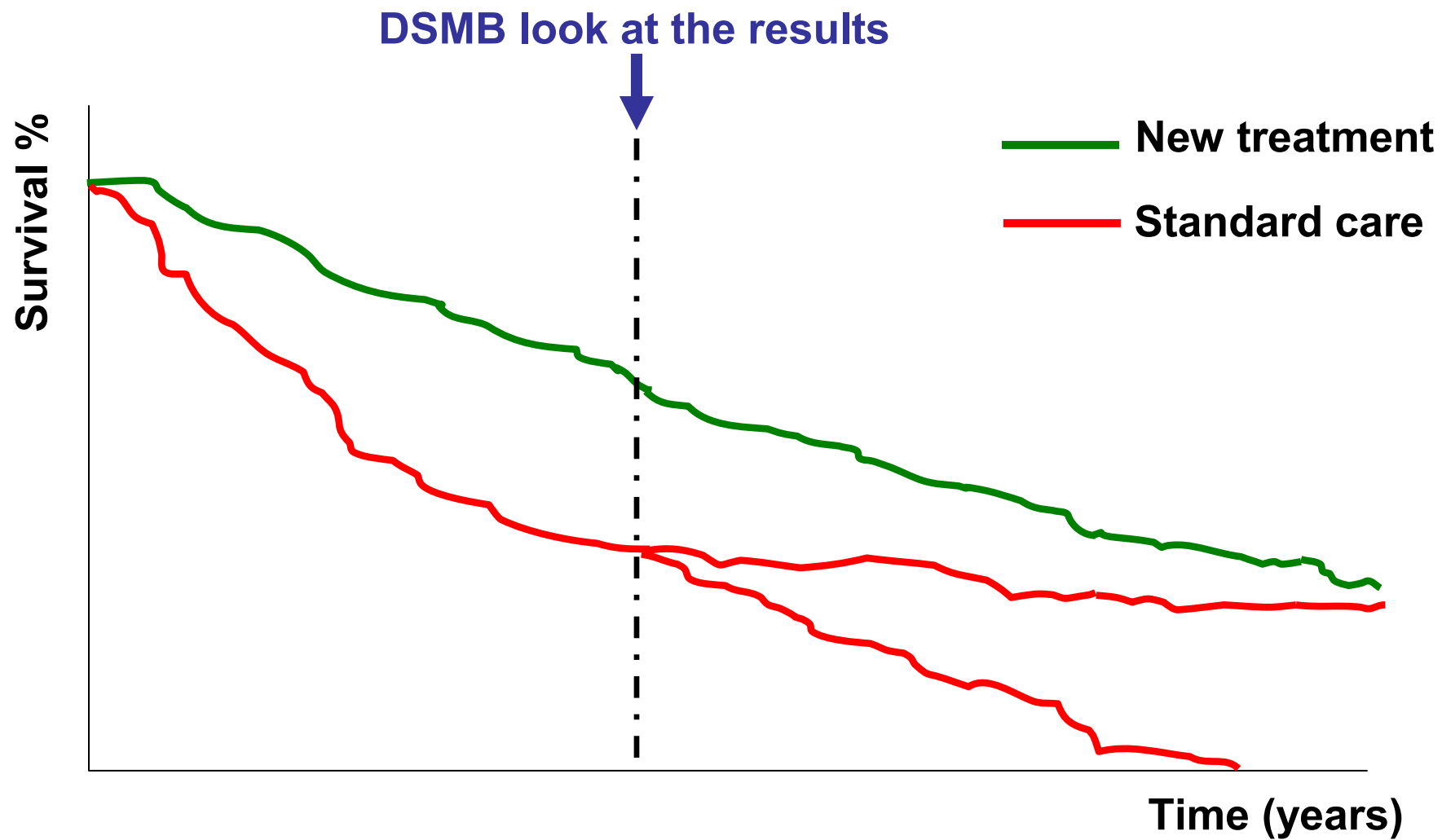
- ICER is a ratio that is based on the interaction between cost and benefit.
- When cost and benefit do not increase proportionately, paradoxical results can occur.
- In a fatal disease, the best successes are often seen in patients with good prognoses, resulting in longer treatment durations:
 - For expensive therapies, the resulting drug costs can get increasingly disproportionate to the survival benefit.
 - **The ICER may be the lowest in patients with a poor prognosis and little opportunity to improve survival:** they do not stay on drug therapy and their costs remain low.

Example: ICER for sunitinib vs. interferon-alfa for the treatment of metastatic renal cell carcinoma.

No. of poor prognosis risk factors	ICER
3+	\$97K/QALY
1-2	\$131K/QALY
0	\$165K/QALY
Overall	\$144K/QALY

*Chabot I, Rocchi A. How do cost-effectiveness analyses inform reimbursement decisions for oncology medicines in Canada? The example of sunitinib for first-line treatment of metastatic renal cell carcinoma. *Submitted (under review)*

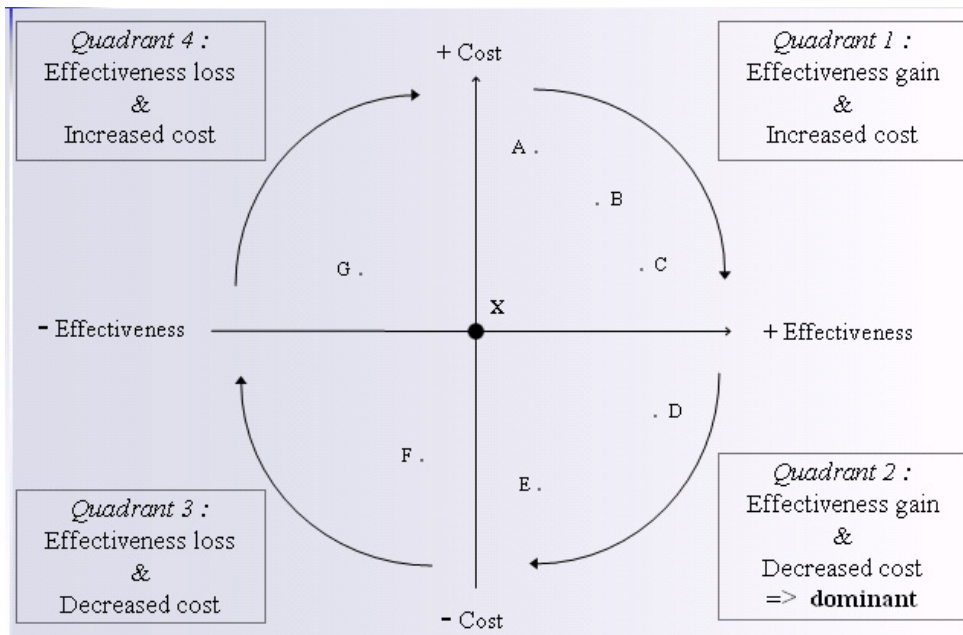
Sometimes, we should consider other factors than ICERs.... Such as good judgement.... TAKE TWO



Conclusion

- ICERs are good indicators if ALL components of the healthcare system are evaluated but... other factors need to be considered
 - Rewarding discoveries (rewarding continued research) even with small incremental gains in areas of unmet need
 - Using good judgement!
 - Dynamic of pricing modalities and factors such as size of patient population
 - Other social and ethical factors

Implications for innovative Rx (A, B or C)



- More expensive to research
- Longer to bring to market
- Addressing a condition affecting a relatively narrower population
- Subject to background treatment of relatively high efficacy increasing the difficulty to differentiate
- Recouping investments requires relatively higher price