USC Schaeffer
Leonard D. Schaeffer Center for Health Policy & Economics

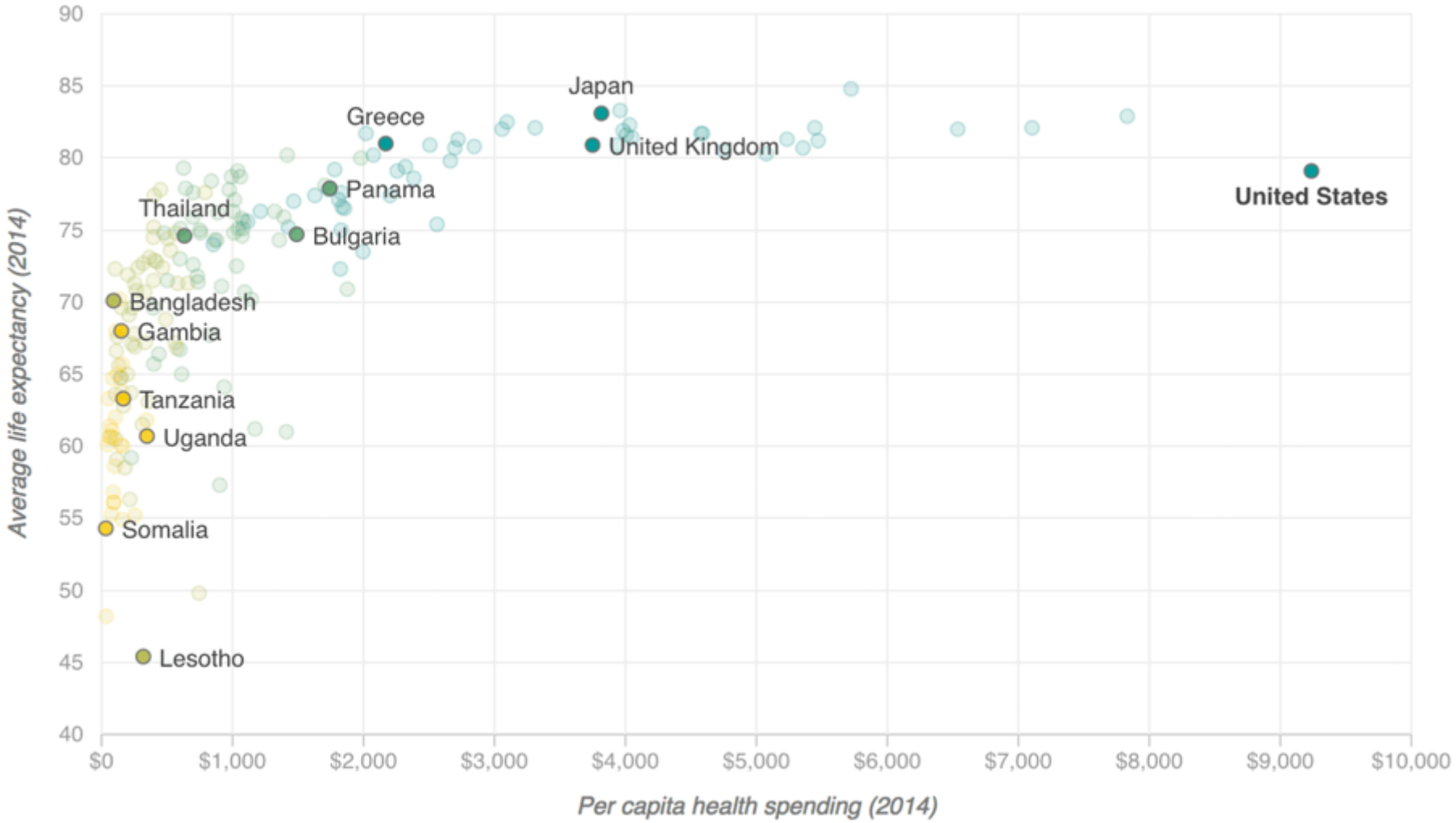
Applying Value Assessment to the Health Care Sector for COVID-19

Bill Padula, PhD

Assistant Professor of Pharmaceutical & Health Economics & Fellow
Schaeffer Center for Health Policy & Economics
School of Pharmacy
University of Southern California
@DrWmPadula

If this graph can tell us anything, it is that clinical effectiveness combined with economic evaluation are critical to finding a sweet-spot in health system efficiency

USC Schaeffer



Value Assessment

USC Schaeffer

Cost-effectiveness is a function of ***Cost*...** and… ***Clinical Benefit***

$$\textit{Incremental Cost-Effectiveness Ratio (ICER)} = \frac{\textit{Cost(New)} - \textit{Cost(SOC)}}{\textit{Benefit(New)} - \textit{Benefit(SOC)}}$$

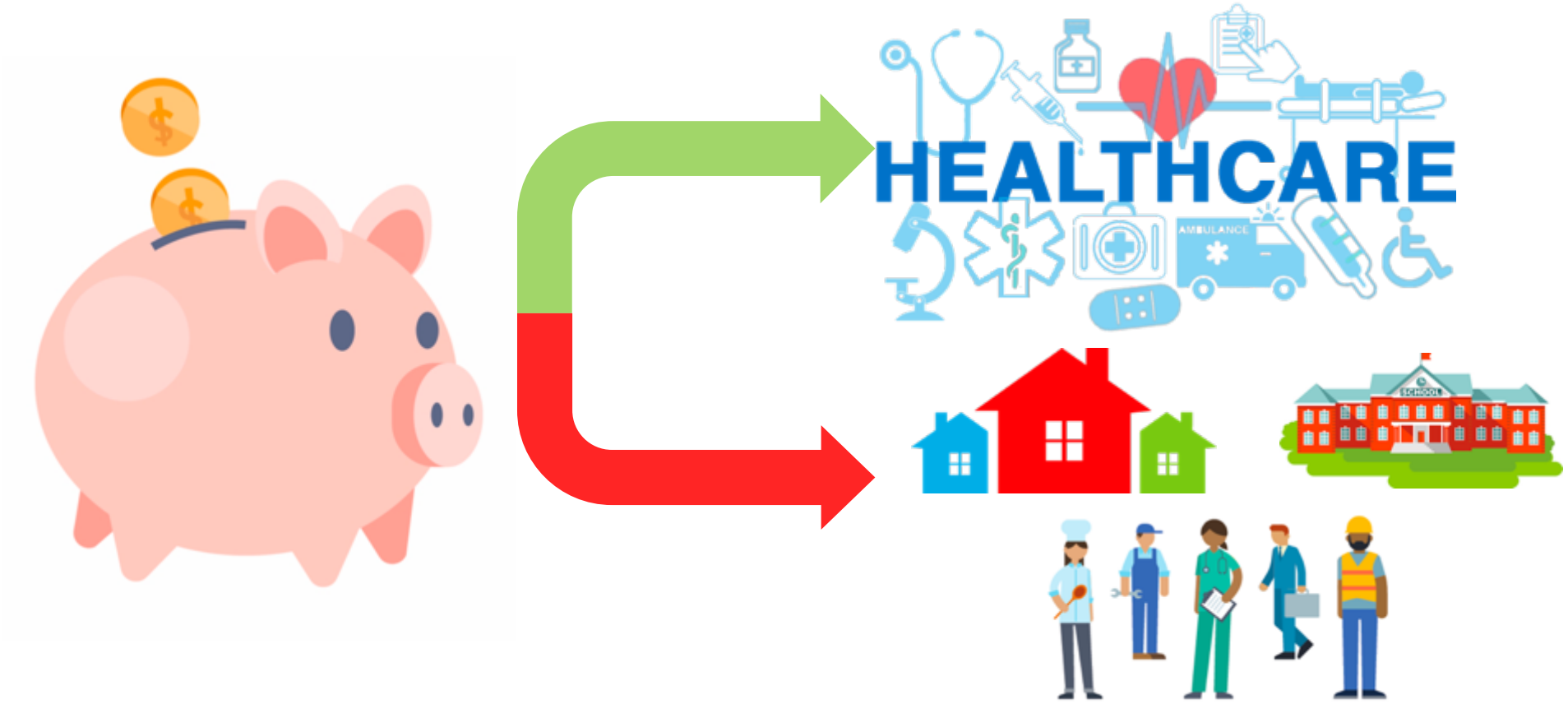
"New" implies new technology to manage COVID-19 cases (e.g. treatment, vaccine)
"*SOC*" implies current *standard of care* for COVID-19 (e.g. critical care)

Opportunity Costs

USC Schaeffer

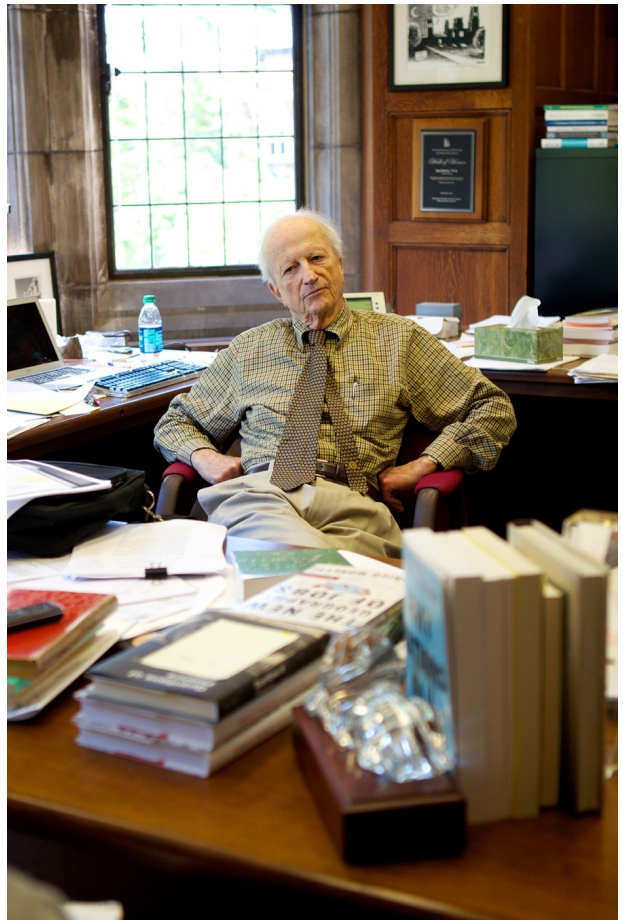
Pricing is not the only purpose – or primary reason – for applications of cost-effectiveness analysis

Understanding the importance of Opportunity Costs in Healthcare Decision-making can improve efficiency of spending on COVID-19 care, but at what threshold?



Opportunity Costs of COVID-19

USC Schaeffer



Gary Becker, PhD
Nobel-winning Economist
(1930-2014)

- Becker estimated the impact that a pandemic could have on the US economy in 2009:
  - $20 trillion economy
  - 1/100 of probability of pandemic in a given year
  - *Net Present Value* = **$200 billion**
- But now we have certainty in a current pandemic
  - $21.43 trillion economy
  - 100/100 certainty of pandemic
  - ~25% impact on nationwide productivity
  - *Net Present Value* = **$5.36 trillion**
- ***Opportunity Cost*** = **$128,000** per working-age American
  - 205 million working-age Americans
  - Finance solution over 5-years to eliminate a pandemic
- This value falls within the upper range of typical cost-effectiveness thresholds
  - Typically between $50,000-$150,000 per quality-adjusted life year (QALY)
  - Reflects opportunity costs whereby spending above a threshold restricts resource allocation to other priorities

Economic Evaluation of COVID-19 Health Technology

USC Schaeffer

Preprints with THE LANCET

Economic Value of Treatment and Vaccine to Address the COVID-19 Pandemic: A U.S. Cost-Effectiveness and Budget Impact Analysis

	ECONOMIC IMPACT						
Comparator	**Cost** ($)	**ΔCost** ($)	**Effectiveness** (QALYs)	**ΔEffectiveness** (QALYs)	**ICER** ($/QALY)	**Program Cost** ($ billions)	**Budget Impact** *($ per person per month)*
Do Nothing	2,115		0.874			697.83	176.22
Social Distancing	1,738	-377	0.875	0.001	*Dominates*	548.85	138.60
Treatment	1,299	-885	0.877	0.003	*Dominates*	66.56	16.81
Vaccination	999	-1,115	0.892	0.019	*Dominates*	9.90	2.50

- At any reasonable price, new health technologies for COVID-19 ”dominate” standard care
  - Vaccines and treatments cost less
  - Vaccines and treatments offer greater clinical benefit
- This suggests that Cost-effectiveness Analysis is not a good tool for pricing out solutions
- We should consider budget impact and other tools to explore value-for-money to ensure…
  - Prices of COVID-19 health technology make them accessible to patients
  - Prices remunerate innovations, short timelines and opportunity costs of manufacturers

Source: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3586694

Conclusions

USC Schaeffer

- We need to prepare to use a Value Framework in order to explore value-for-money that COVID-19 health technology may deliver in the near-future

- Cost-effectiveness analysis may be challenging to advise U.S. healthcare on all fronts, especially when it comes to price of these health technologies

- Both Cost-effectiveness Analysis and Budget Impact should be used in tandem to explore value and advise manufacturers and insurers on price points that achieve:
  - Access of individual patients
  - Renumeration for manufacturers that innovate
  - Ensure that opportunity costs do not exceed payer budgets to serve the needs of multiple patient populations, besides just COVID-19

USC Schaeffer
Leonard D. Schaeffer Center
for Health Policy & Economics

Contact: padula@healthpolicy.usc.edu

---

healthpolicy.usc.edu

blog: evidencebase.usc.edu

facebook.com/SchaefferCenter

@SchaefferCenter