



cutting through complexity

Medicare: The health care business model An economic viewpoint

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Overview of Medicare

- I. Benefits – Parts A, B, C, and D**
- II. Funding – Taxes, Premiums, and Cost-Sharing**
- III. Participants – Patients, Providers, and Payers**
- IV. Payments – Methodologies and Prices**
- V. Objectives – Aging vs. Disease**
- VI. Quality – Definitions, Decisions and Measurement**

Part I: Medicare Benefits

- July 30, 1965 – Enacted SSA Title XVIII and XIX
- July 1, 1966 – Coverage begins
- 1972 – Expanded eligibility to disabled < 65
- 1977 – HCFA combines Medicare and Medicaid
- 1985 – Medicare + Choice Part C
- 1988 – Medicare Catastrophic Coverage Act
- 2001 – HCFA renamed to CMS
- 2003 – Medicare Modernization Act (MMA) Part D (MA-PD plans)
- 2010 – Affordable Care Act (ACA)

Medicare Benefits A through D

- Part A – Original Hospital benefits modeled on Blue Cross (formed in 1933)
 - Tax-exempt
 - Prepaid benefits, not regulated as insurance
- Part B – Original Physician benefits modeled on Blue Shield (formed in 1939)
- Part C – Managed care HMO model (1997)
- Part D – Prescription Drug coverage (2003)

1960s Great Society Assumptions

- Health care demand is a fixed constant
- Experts, such as actuaries, can figure out what the health care demand is and how to meet it
- Responsibility for health care pricing and delivery can be delegated to doctors, who know what's best for patients
- Virtually all health care costs for seniors are paid for
- Advancing medical science will cure diseases and reduce health care costs
- Medicare solves a social problem

Part II: Medicare Funding

Actuarial Premium Rate-Setting Formula

- Premium = E [claims] + Policy Administrative Expenses + Profit + Risk Margin (varies inversely with precision of E [claims])
- Original Medicare cost projections were developed by the Office of the Actuary (OACT), but not using actuarial methods

Medicare Funding – Hospital Part A

Four-fold payroll tax increase in the first 20 years

- 0.7% 1966
- 1.0% 1967
- 1.2% 1968 almost doubled first two years
- 2.0% 1973
- 2.6% 1981
- 2.7% 1985
- 2.9% 1986
- 2.9% 2013 unchanged in the past 27 years

Original Medicare Cost Estimates

Robert Myers, *The Actuary*, February 1994

- In 1965, OACT did not account for
 - Expansion of eligibility
 - Expansion of benefits
 - Unit cost and Utilization inflation
- By 1990, 25 years later
 - Medicare costs 7.4 times greater than projected
 - Revenues increased four-fold (0.7% - 2.9%)
 - “appropriately modified” loss ratio of 265%

Medicare Patient Cost Shares

- 1966 Medicare Patient Out-Of-Pocket Costs
 - Part A deductible: \$40/year
 - Part B premium: \$3/month + 20% coinsurance
- 2013 Medicare Patient Out-Of-Pocket Costs
 - Part A deductible: \$1,184/year
 - Part B premium: \$105-\$336/month + 20% coinsurance
 - 2012 Part B premium covered 25% of costs – 400% MLR
- Despite 30-fold increases in premiums and deductibles, still not keeping pace with costs

Medicare Part D

- Signed into law November 2003
- Started CY-2006
- Entirely unfunded
- Optional benefit for Medicare recipients
- Monthly member premium ~ \$30.00
- Covers about 12.5% (1/8th) of Part D cost
- Remaining 87.5% paid from general revenue

Medicare Part D Benefit Structure

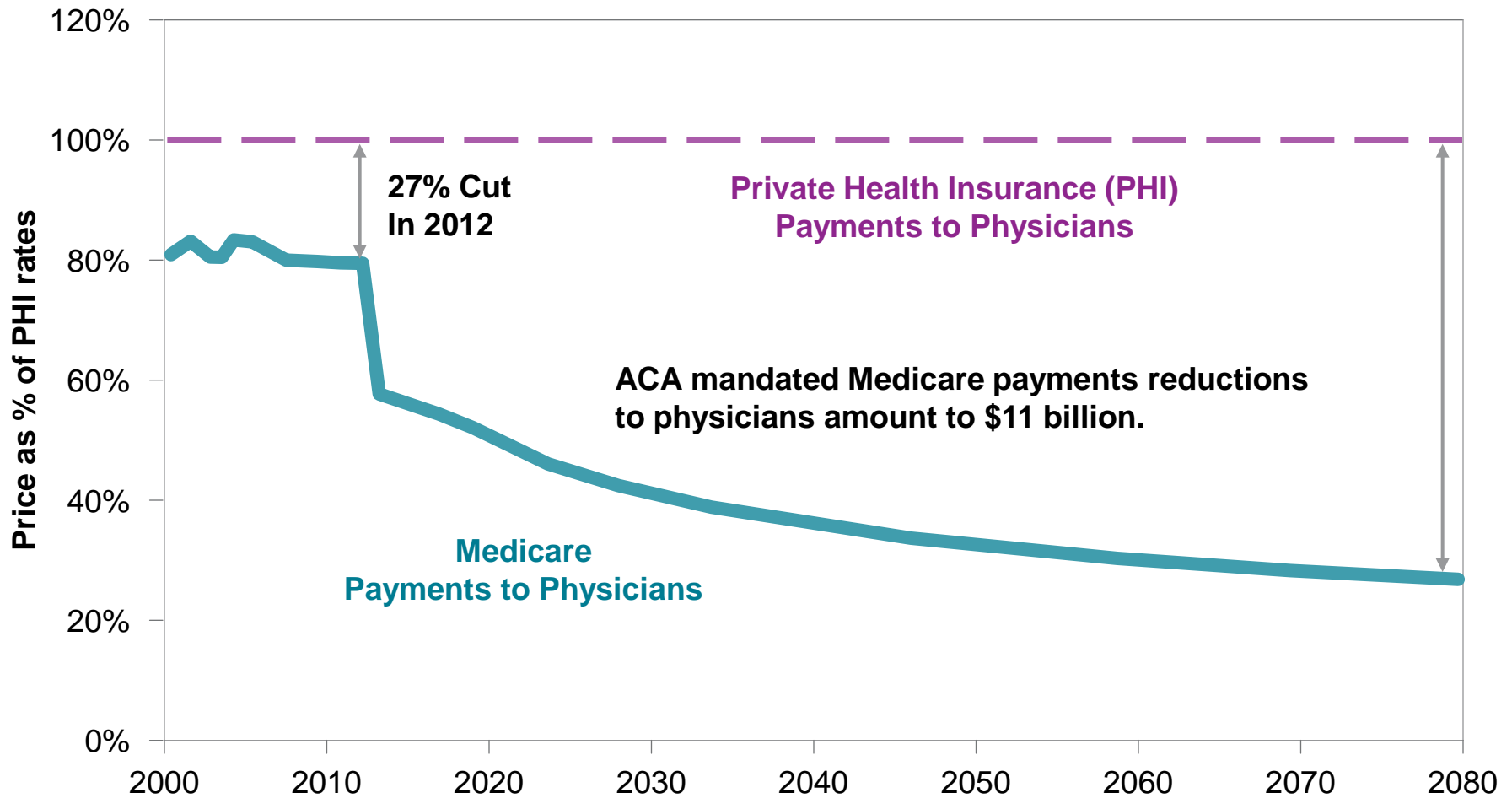
	2006	2013
Deductible	\$ 250	\$ 325
Coinsurance	25%	25%
Initial Limit	\$ 2,250	\$ 2,970
Donut Hole	\$ 2,850	\$ 3,764
Catastrophic Limit	\$ 5,100	\$ 6,734
Out Of Pocket Maximum	\$ 3,600	\$ 4,750

Medicare Actuary Report

“... the financial projections shown in this report for Medicare do not represent a reasonable expectation for actual program operations in either the short range (as a result of the unsustainable reductions in physician payment rates) or the long range (because of the strong likelihood that the statutory reductions in price updates for most categories of Medicare provider services will not be viable).”

- Richard Foster, Chief Actuary (2011 and 2012)
- Paul Spitalnic, Acting Chief Actuary (2013)

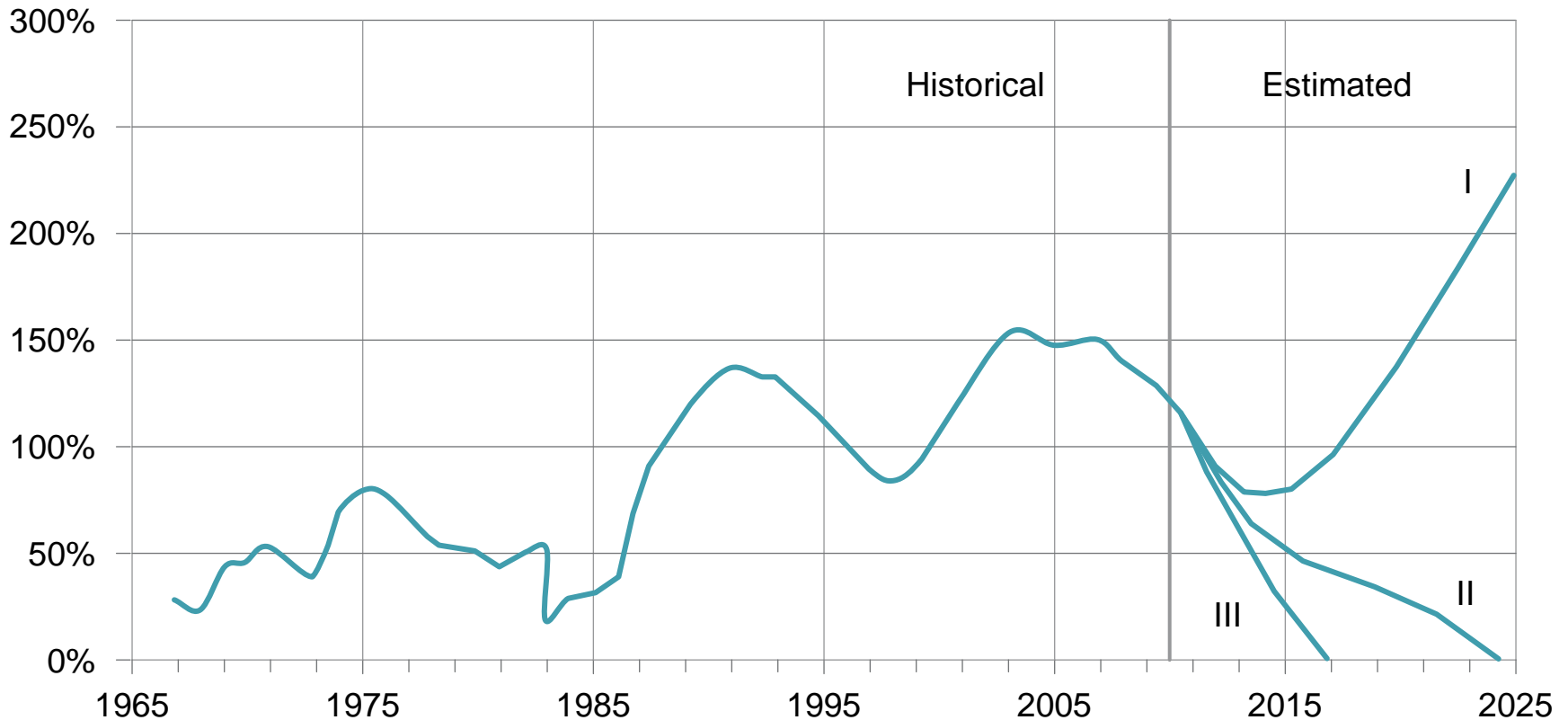
The “Doc Fix” and ACA Physician Fee Reductions



Source: Center for Medicare and Medicaid Services and house budget committee and statement of actuarial opinion from the medicare trustees report.

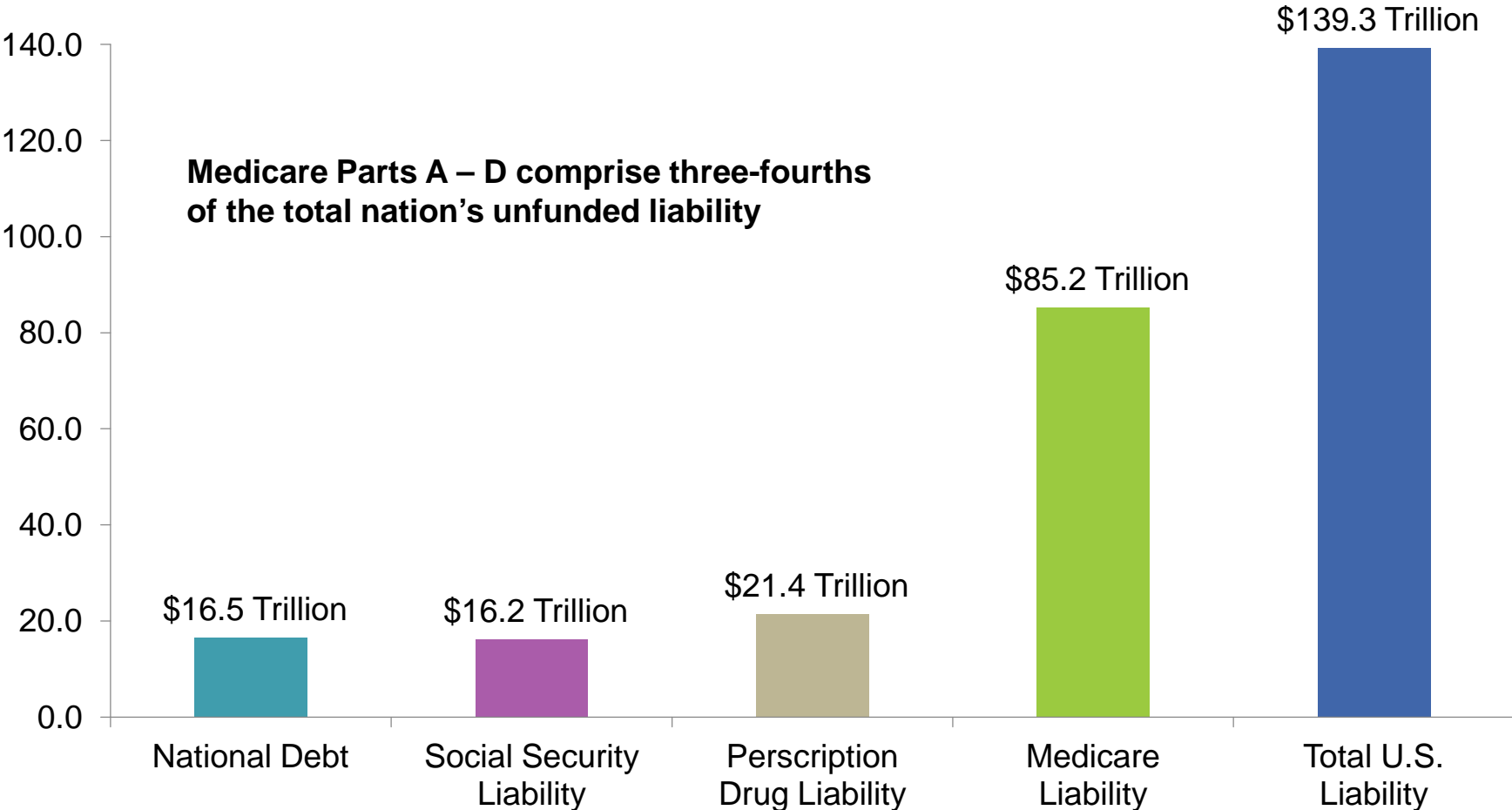
Actuarial Analysis of Part A Trust Fund

Figure III.B.2.—HI Trust Fund Balance at the Beginning of the Year as a Percentage of Annual Expenditures



Source: Medicare Board of Trustees and Statement of Actuarial Opinion from the Medicare Trustees Annual Report.

The National Debt – Source: U.S. Federal Reserve



Part III: Medicare Participants

- Public good problem in economics is how to charge users and fund the costs
 - For a (nearly) “free good” – e.g. airwaves and roads
 - When cost does not vary with quantity used
- Medicare is designed as a “public good”
 - Everyone gets the same thing in the same way
 - Patients and providers [ir]rationally ignorant actors
 - Low capture rate of prices and services
 - Moral and morale hazards
 - Tragedy of the commons

Part IV: Medicare Payment Models

- 1965 – Usual, Customary and Reasonable (UCR)
- 1983 – Diagnostic Related Groups (DRGs)
- 1989 – Resource Based Relative Value Scale (RBRVS)
- 1997 – Balanced Budget Amendment (BBA)
 - Prospective Payment Systems (PPS) for Inpatient Rehabilitation Facilities (IRFs), Skilled Nursing Facilities (SNFs), Outpatient and Home Health Services (HHS)
 - Part C Managed care HMO model @ 95% FFS
- 2004 – Hierarchical Condition Categories (HCC) Risk Scores for Medicare Advantage (MA-PD)

Medicare Pricing – UCR (1965)

- **Usual** — Median fee paid to doctor in the previous year
- **Customary** — Median fee paid to other doctors in the same specialty in the previous year
- **Reasonable** — Fee for new procedures set by a medical committee of peers

Medicare Pricing – DRGs (1983)

- Three-digit code defined by admitting diagnoses
- Rate = $(SFLR \times LWIF + SFNLR) \times DRGW \times (1.0 + DSHF + IDME) + \text{Outlier Charge}$, where
 - SFLR = Standard Federal Labor Rate
 - LWIF = Local Wage Index Factor
 - SFNLR = Standard Federal Non-Labor Rate
 - DRGW = DRG Weight for specific diagnosis
 - DSHF = Disproportionate Share Hospital Factor
 - IDME = Indirect Medical Education Factor

Medicare Pricing – DRG Outliers

- Outlier Payment = $0.80 \times [\text{Billed Charges} \times \text{Cost-to-Charge (CTC) Ratio}] - [\text{DRG} + \text{DSH} + \text{IDME} + \text{Outlier Threshold}]$
 - 2003 Outlier Threshold = \$33,560
 - Incentive to inflate Billed Charges on hospital charge-master to inflate outlier payments
 - CTC Ratio designed to cancel this out
 - Three year CTC Ratio lag promotes escalation
 - Hospital Billed Charges are fictional numbers ignored by third party payers but not uninsured cash paying patients

Medicare Pricing – RBRVS (1989)

- Medicare Fee Schedule (MFS) for service i in locality j — $MFS_{ij} = CF \times (\{W_i \times [0.75 + (0.25 \times GW_j)]\} + (O_i \times GO_j) + (M_i \times GM_i))$ where
 - CF = Conversion Factor
 - W_i = Work relative to service i
 - GW_j = Geographic Cost Index for work in locality j
 - O_i = Office Expense relative value for service i
 - GO_j = Geographic office expense index in locality j
 - M_i = Malpractice cost relative value for service i
 - GM_i = Geographic malpractice cost index locality j

Medicare Pricing – HMOs (1997)

- Idea was that managed care would be more efficient than Fee For Service (FFS) delivery
- HMOs were paid 95% of current FFS costs
- However, the most expensive 1% of patients account for 28% of Medicare costs
 - Institutionalized in hospitals or nursing homes
 - Effectively removed from enrollment pool
 - Medicare HMOs had generous profit margins

Medicare Pricing – Risk Scores (2004)

Hierarchical Condition Categories (HCCs)

- Describe 189 disease conditions
- Each HCC is assigned a score, reflecting relative cost to treat condition
- Sum of HCC values for a patient represent relative risk/cost to treat
- Risk scores for all Medicare members normalized to 1.0 for average patient
- RxHCCs – Similar duplicate process for Part D

Risk Score Example

- Age 65 New Medicare Enrollee (ambulatory) = 0.515
- HCC 18 – Diabetes w/o complications = 0.118
- HCC 21 – Morbid Obesity = 0.365
- HCC 85 – Congestive Heart Failure = 0.368
- Total = 1.366, or 36% more expensive than the average Medicare patient
- Medicare pays MA-PD plans based on relative, not absolute, risk scores

Risk Score Models

- Conflict with the information principle
 - From Hurricane Scenario
 - To Earthquake Scenario
- Use fixed prices of DRGs and RBRVS to fix second set of HCC relativities
- Must be “normalized” each year to back-out risk score “inflation”
- Doctors now rewarded for upcoding diagnosis instead of upcoding treatments

Charles Goodhart's Laws (1975)

- As soon as the government attempts to regulate any particular set of financial assets [economic good], these become unreliable as indicators of economic trends.
- Any observed statistical regularity [DRG, RBRVS] will tend to collapse once pressure is placed upon it for control purposes
- Once a measure [risk scores, trends] becomes a target, it ceases to be a good measure

Ronald Coase – Theory of the Firm

Awarded Nobel Prize in Economics (1991)

- The purpose of the firm is to reduce/eliminate information (transaction) costs
- Prices within a firm are not set by the market
 - Often Zero: pens, copies, coffee
 - Otherwise Fixed: office vs. cubicle
 - Behavior Tightly Controlled: corporate travel
- Prices outside a firm are set by the market
- All firms must successfully fix internal prices – and control behavior – or go out of business

Medicare Pricing Conundrum

- Firms do not use models like DRGs, RBRVS or HCCs for internal pricing
- Fixing Medicare prices has resulted in an endless succession of revisions and fixes
- Market prices for health care often do not exist
 - Monopoly problem (medical profession licensure)
 - Monopsony problem (Medicare is sole buyer for all patients over age 65)
 - Medicare and commercial prices act as boundaries
 - Rationally ignorant participants

Part V: Aging vs. Disease

“ After spending my adult life studying the aging process, I still am unable to biologically define aging; all I can do is describe its effects ”

– Dr. Chris Heward, Ph.D. Kronos Laboratories

“ I went into medicine to learn how to treat real disease, only to become a doctor and find out that there’s not a lot of real disease out there ”

– Dr. Robert Gervais, M.D. Ophthalmologist

Disease

- Defined as a condition someone has or does not have
- Can be medically defined as classified as
 - Preventable: Polio, Measles
 - Curable: Flu, Pneumonia
 - Treatable: Cancer, Diabetes
 - Incurable: Alzheimer's, Multiple Sclerosis
- Not inevitable

Aging

- Undefined: cells in your body have the exact same DNA as 30 years ago
- Inevitable: eventually affects everyone
- Early manifestations of aging symptoms are classified as diseases
 - Cancer
 - Osteoporosis
- Result is 100% failure/death rate

Inevitable Effects of Aging

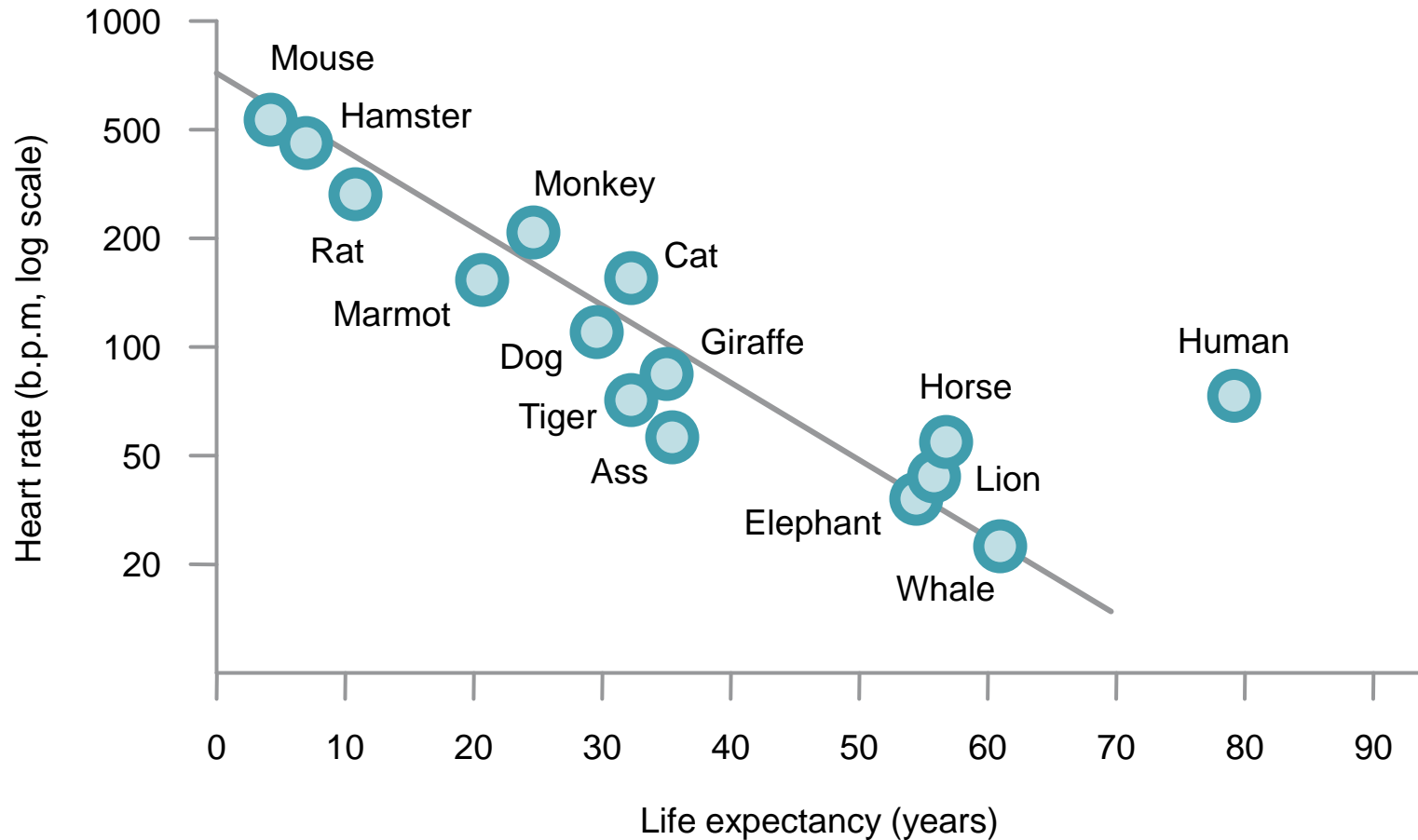
Impact of aging on visual ability

- We're born with 1 million retinal cells
- We lose 5,000 retinal cells every year
- By age 100, only 500,000, or half, remain

Impact of aging on cancer

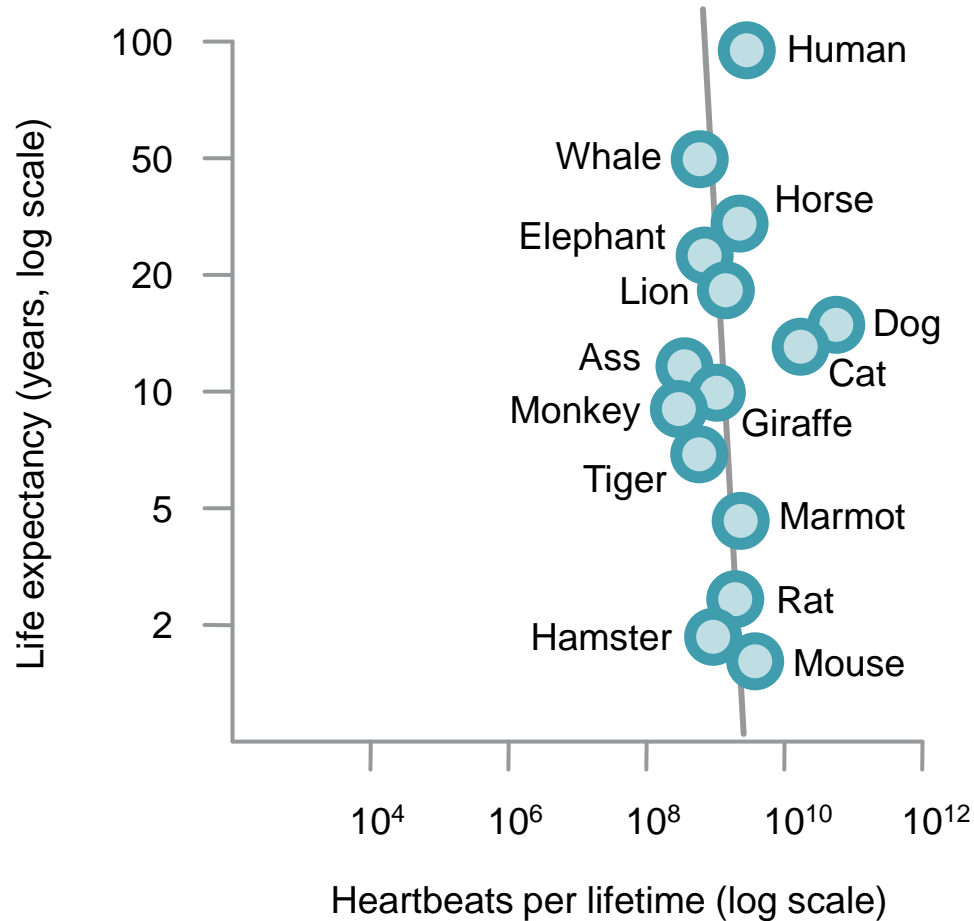
- Most 80 year-old humans and 3 year-old mice have some form of cancer
- Most people over the age of 75 die *with* cancer, but not *of* cancer

Natural Law of Life Expectancy



<http://eurheartj.oxfordjournals.org/content/27/20/2387.full.pdf>

Natural Law of Aging



<http://eurheartj.oxfordjournals.org/content/27/20/2387.full.pdf>

Part VI: Quality Goals

- Disease: Cure and Treatment of symptoms
- Aging: Delay and Treatment of symptoms
- Medicare: Manage a process to failure

Quality Definitions – Joseph Juran

Quality is defined by the customer as:

- Fitness for use
- Freedom from defects
- What satisfies the customer
- What the customer is willing to pay for
- A moving target

Juran on Leadership for Quality (1988)

Who? Whom?

Who is the customer? Who decides for whom?

- Patient
- Doctor
- Fiduciary Payer
 - Health plan
 - Employer
 - Government

Quality Measurement

McDonalds

- Product:
 - Beef
 - Potatoes
 - Bread
- Calories: 2,000
- Service: Fast
- Cost: \$7.00

Morton's Steakhouse

- Product:
 - Beef
 - Potatoes
 - Bread
- Calories: 2,000
- Service: Slow
- Cost: \$70.00

Standard Quality Objectives

- Avoid making defects
 - Prohibit defective components from entering system: Accept no bad parts
 - Control the process: Make no bad parts
 - Verify the result: Pass no bad parts
- Joseph Juran's Artisan concept for workers
 - Self-control
 - Self-inspection
 - Knowledge and authority to correct defects

Juran on Leadership for Quality (1988)

Standard Quality Objectives Applied to Health Care

- Avoid sick patients
 - Accept no sick patients
 - Treat no sick patients
 - Refer no sick patients
- Artisan concept for doctors
 - Often unable to control diseases or patients
 - Lack authority to treat patients
 - Long delays until outcomes can be determined

Common Health Care Quality Assumptions

- All patients with the same condition should be treated in the same way
- Lowest price denotes the highest quality
- A doctor with 1 year of experience is the same as a doctor with 30 years of experience
- All doctors and hospitals should charge the same price for a given procedure
- Economic definitions of wealth do not apply
 - Single-tiered market
 - Waste implicitly defines wealth; waste or unnecessary output to some represents wealth to others

Health Care Quality Conundrum

Unasked and Unanswered Questions:

- How to set priorities for a system designed to attract defects instead of avoid them?
- Who should determine health care quality for Medicare?
- How to define success or quality for Medicare where 100% of cases results in failure/death?

The Great Society Revisited

- No good or service has a fixed demand
- Experts are unable to accurately predict demand in any industry, especially health care
- Resources cannot be efficiently allocated with rationally ignorant participants
- Costs cannot be controlled when following a process to failure
- Advancing medical science has been unable to impact the aging process
- Medicare represents the 75% of the nation's unfunded liability

Tests for Medicare Reform

Medicare's Economic Challenges

- I. Vendor-centric design
- II. Not funded on an actuarial basis
- III. [Ir]Rationally ignorant participants
- IV. Payments based on activities, not results, at prices fixed by committees using failed models
- V. Inevitable aging treated as optional disease
- VI. Quality is not adequately defined for a process that violates quality principles

Thank you

Presentation by Gerry Smedinghoff



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