Demand for Medical Care

Demand for Health

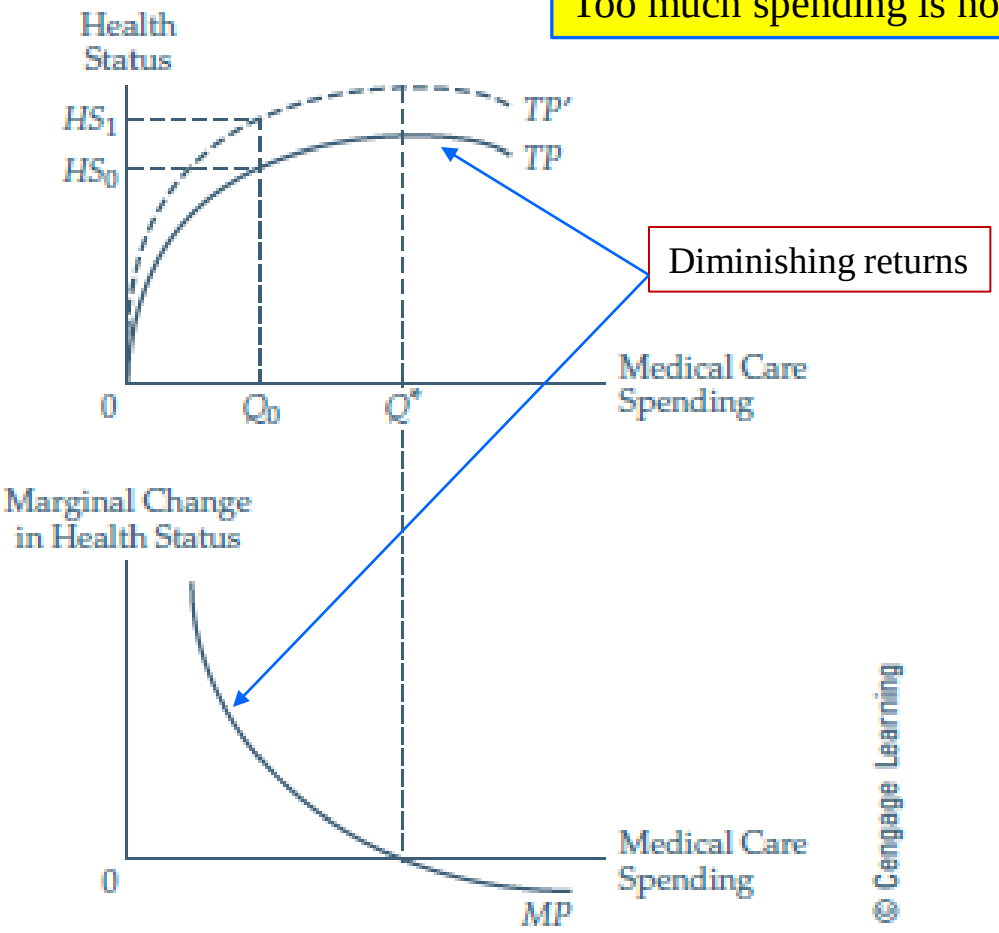
- People use medical care in combination with other inputs to produce good health

- Production function for health:
- $Health\ Status =$
  $f(medical\ care;\ lifestyle;\ genetics;\ enviro\ factors;\ time;\ other\ factors)$

- The relationship is governed by the law of diminishing returns

Health and Spending

Optimal spending is OK
Too much spending is not productive



Measures of Health Status

- Mortality: death rate for a given population
- Longevity
- Quality of Life
- Morbidity: effects of diseases or medical conditions
  - Measures may include restricted-activity days due to illness, incidence rate of chronic conditions, self-assessment of health status

Determinants of Health Status

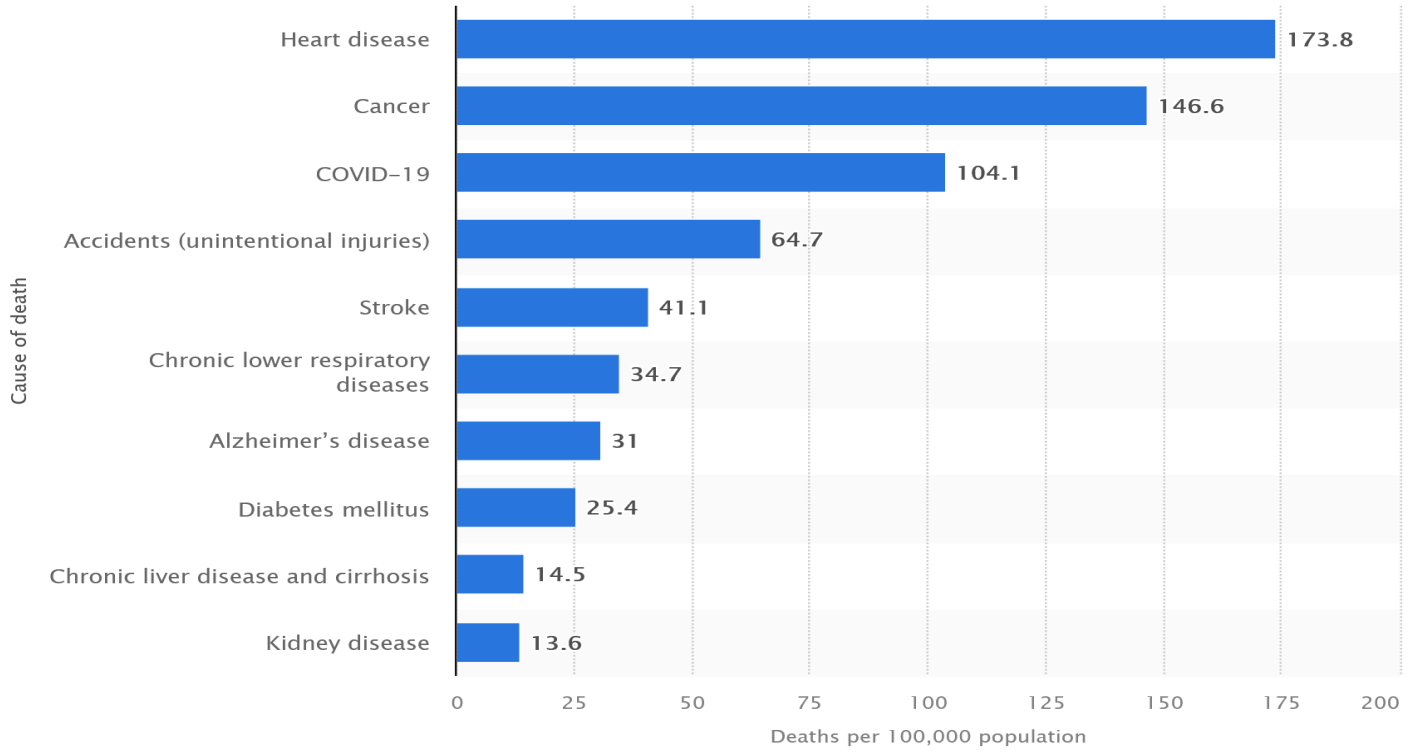
- Income and education
  - Important determinants of access to health care in US
- Environmental and lifestyle factors
  - American Cancer Society estimates that 65% of all cancer is linked to these
- Genetic factors
  - Mapping the human genome may help determine the genes responsible for certain inherited diseases

Role of Public Health and Nutrition

- Decline in mortality in Europe and North America attributable to four major sources:
  - Living standards (better nutrition & housing)
  - Public Health authorities improved sanitary conditions in urban centers (water purification, disposal of sewage)
  - Certain diseases declined because of reduced exposure and increased natural immunity
  - Advances in medical science; improvements in surgery; obstetric & pediatric care; immunizations

Top 10 Causes of Death

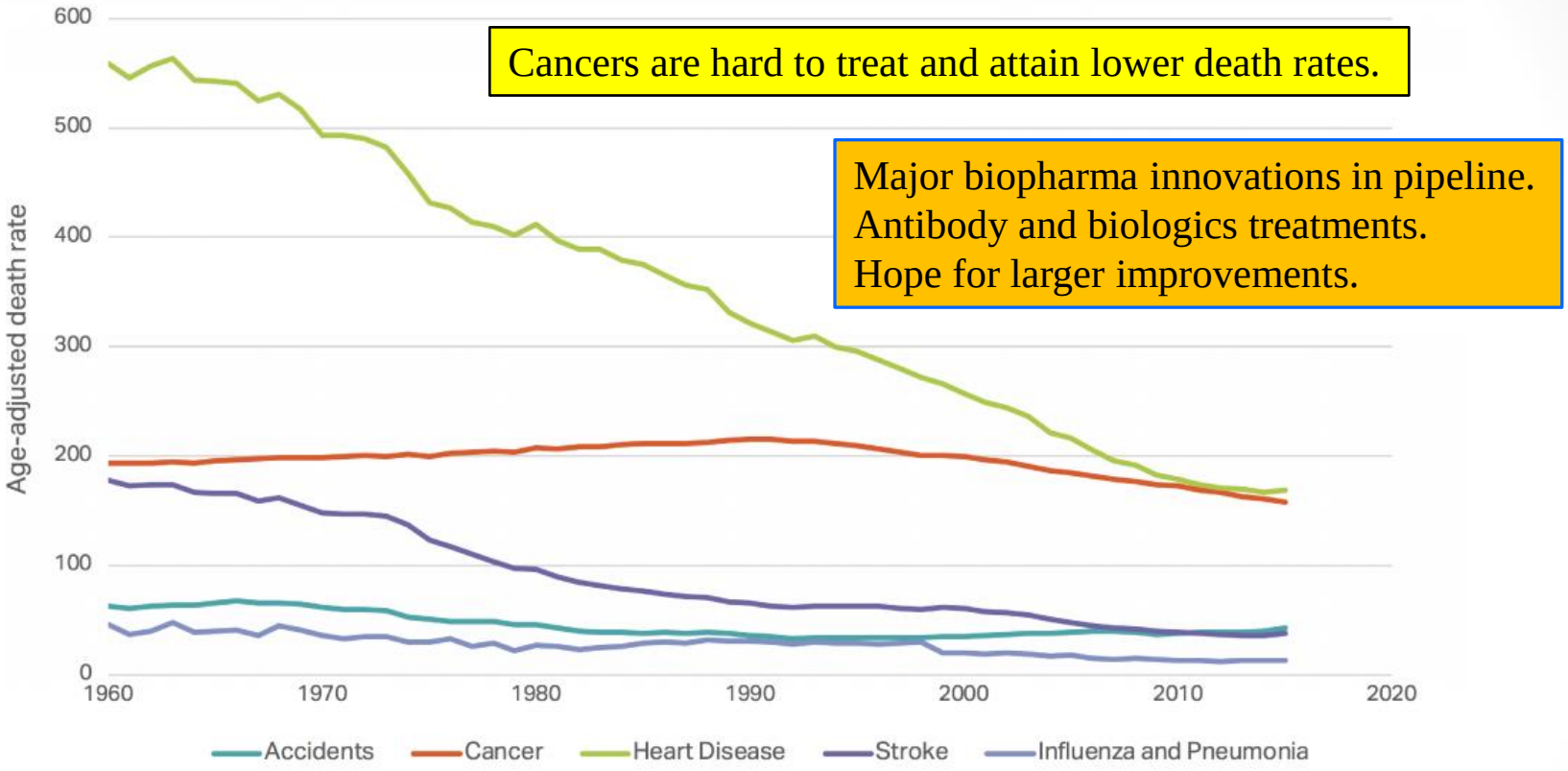
Rates of the 10 leading causes of death in the United States in 2021 (per 100,000 population)



Additional Information

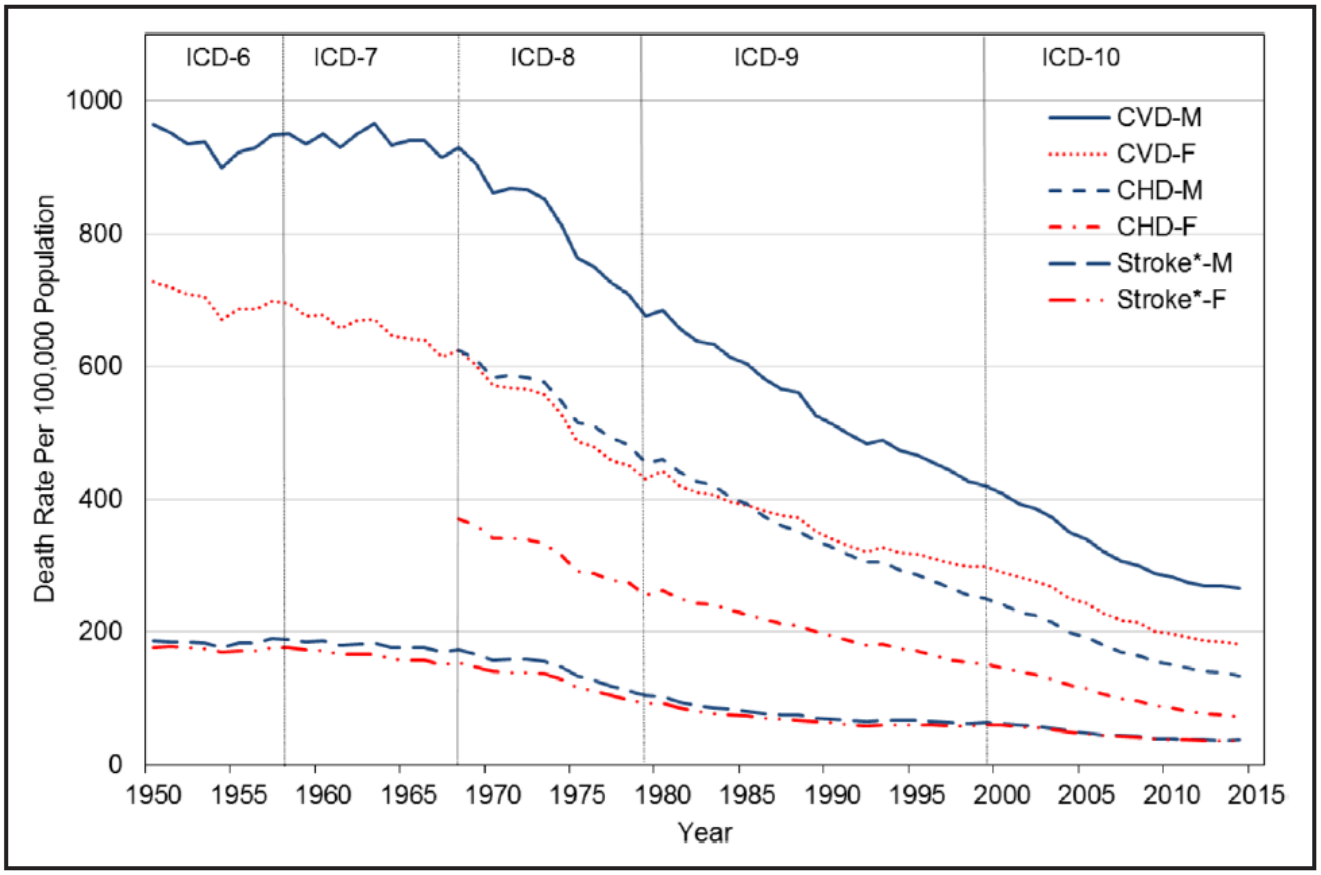
Show source

Mortality Rates - Trends



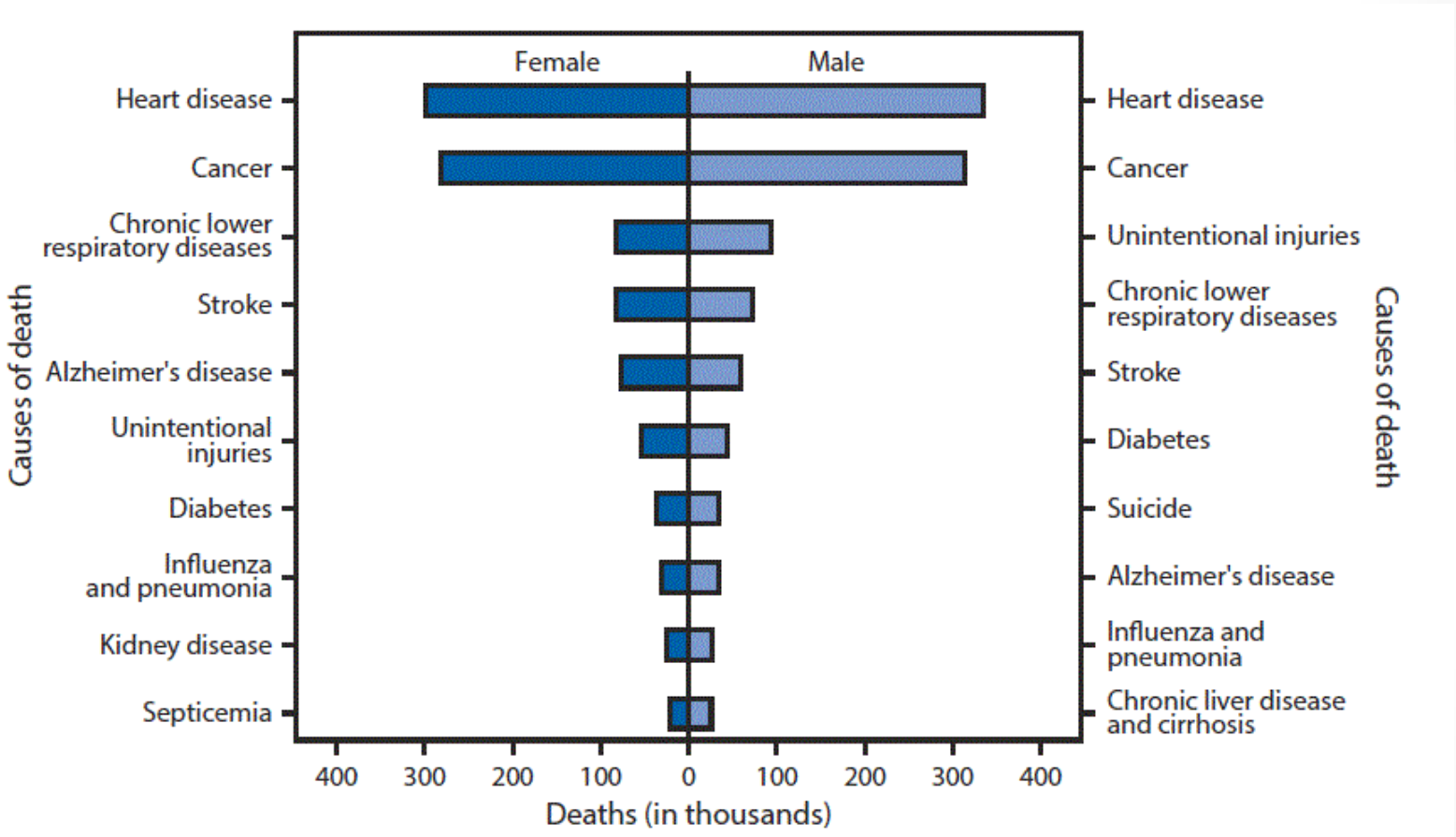
Age-adjusted mortality rates by major cause of death, US population, both sexes, all races, 1960-2015. Age adjusted rates.

Mortality Rates: Cardiovascular



Age-adjusted cardiovascular disease (CVD) mortality rates by sex, 1950 to 2014. *The comparability ratio 1.0502 was applied to the death rates reported in vital statistics for 1979 to 1998. Source: CDC/NCHS, National Vital Statistics System, Mortality Multiple-Cause-of-Death. These data represent underlying cause of death only. CHD indicates coronary heart disease; F: female; ICD, International Classification of Diseases; and M, male. https://www.ahajournals.org/doi/pdf/10.1161/CIRCRESAHA.116.309115

Causes of Death by Gender

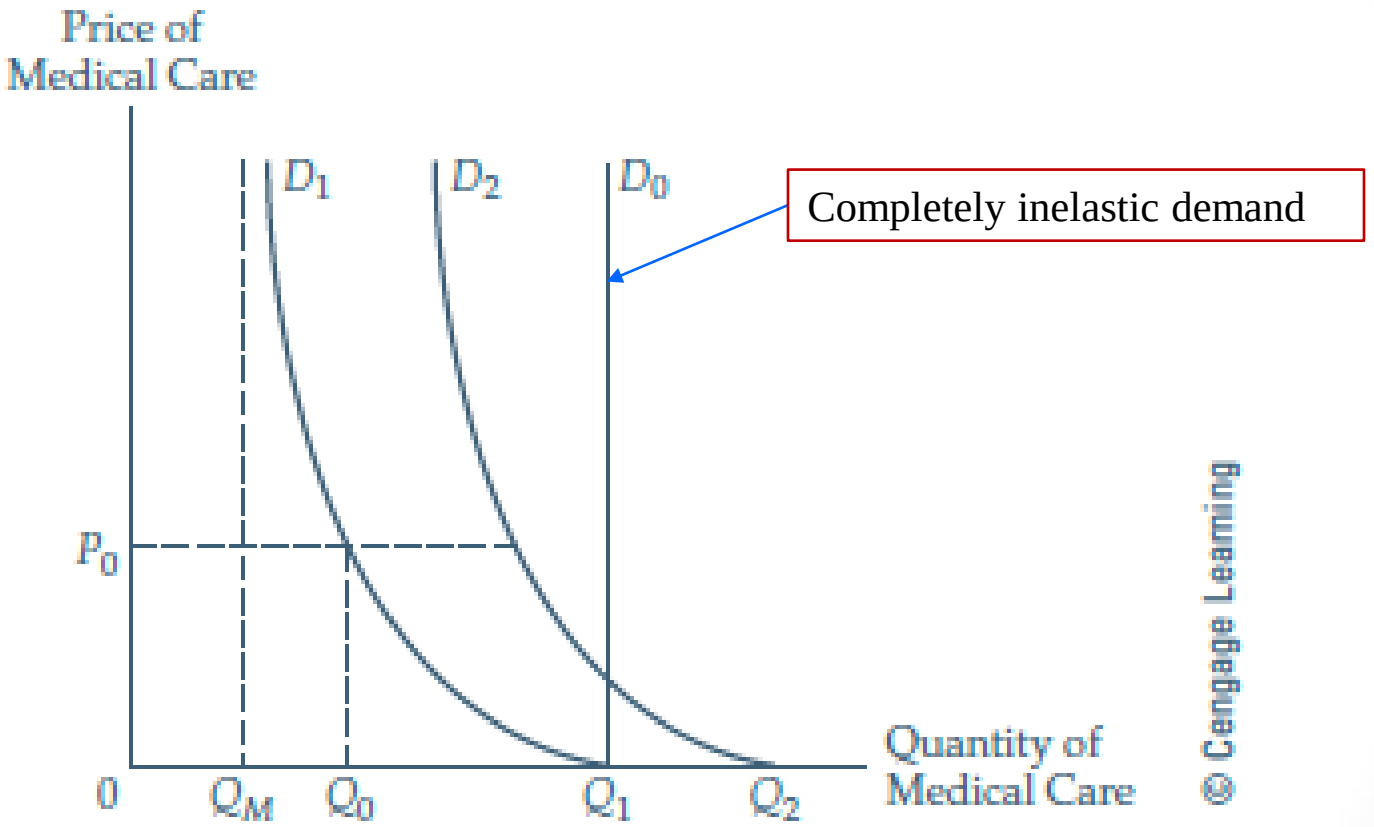


https://nchstats.com/2017/04/24/quickstats-number-of-deaths-from-10-leading-causes-by-sex-national-vital-statistics-system-united-states-2015/

Factors Influencing Demand

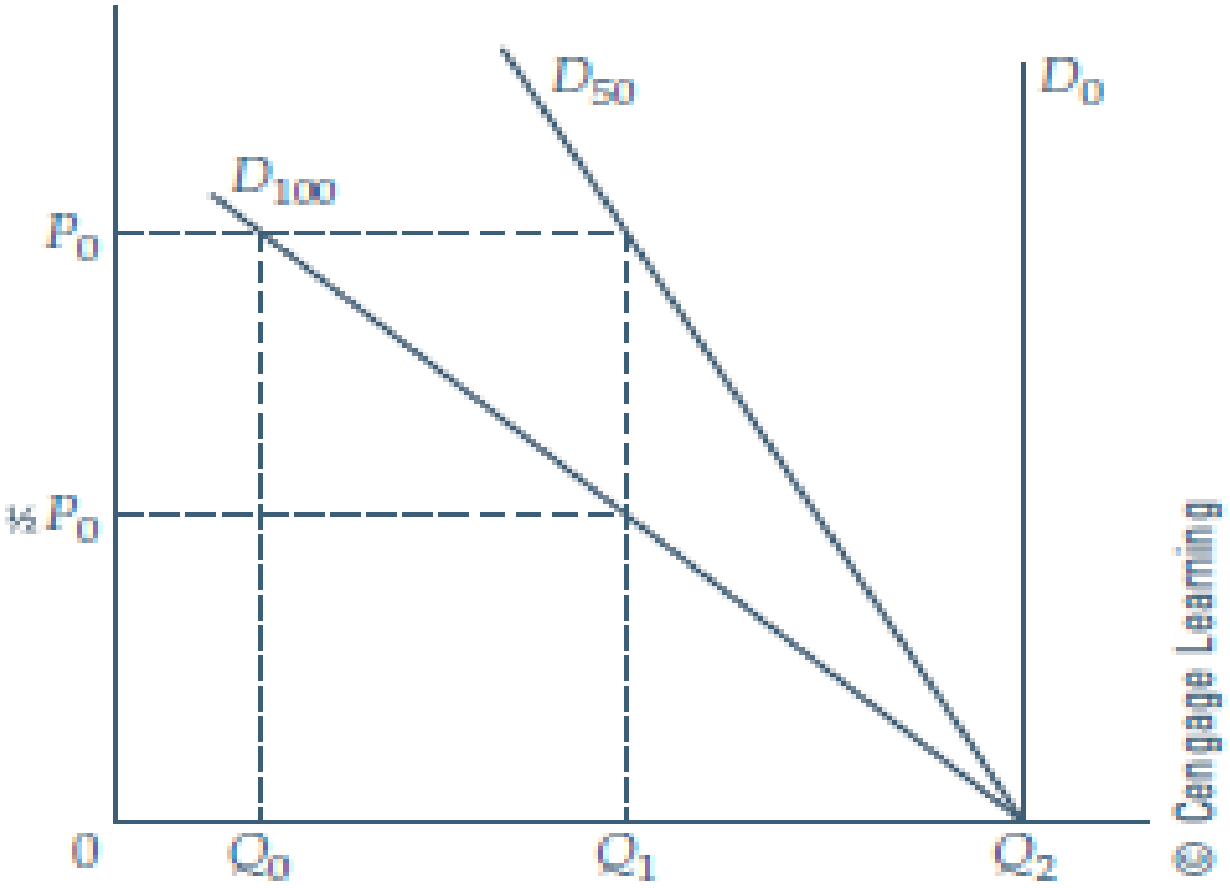
- These include
  - Insurance system, premiums, copays, etc.
  - Patient willingness to pay
  - Patient need, but self-defined
  - Patient health status
  - Education
  - Physician factors
  - Demographic characteristics

Demand for Medical Care

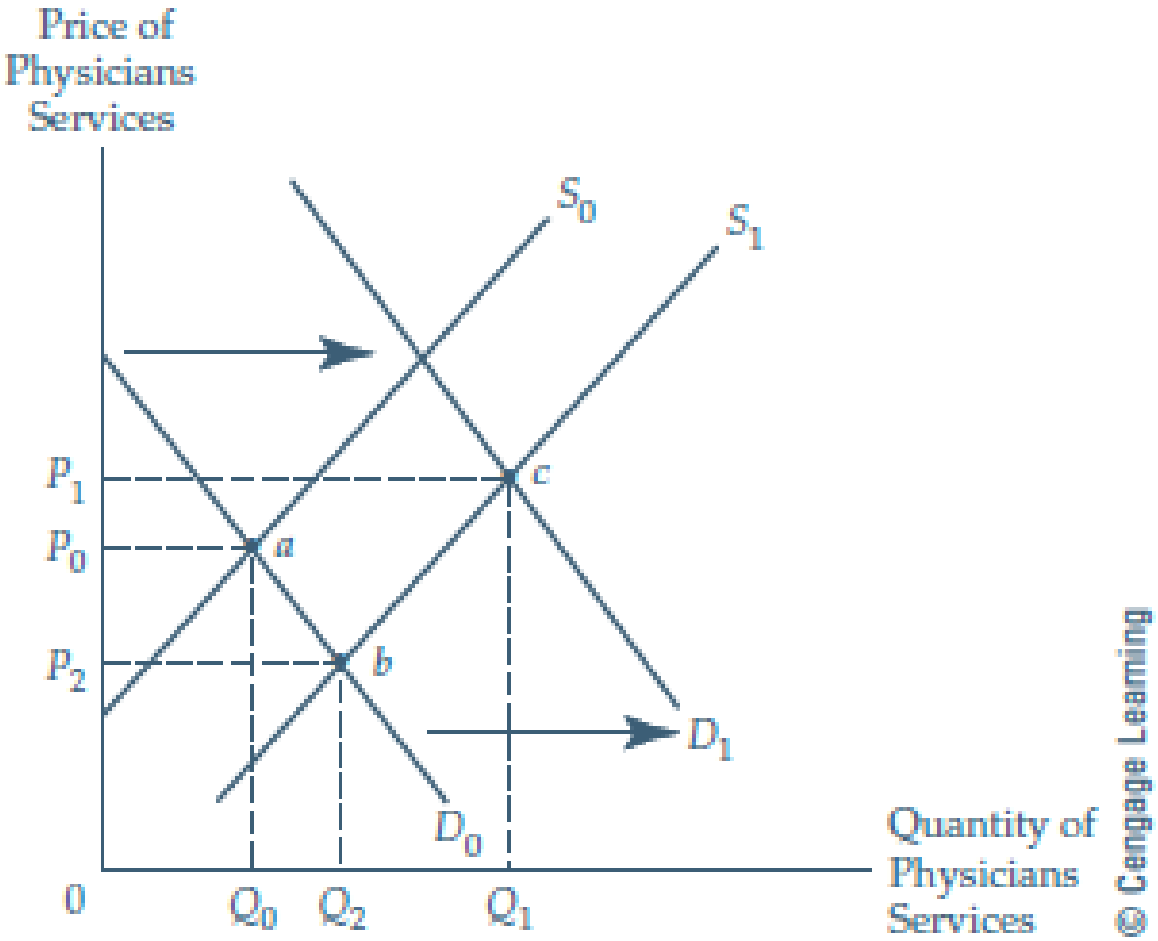


Insurance and Demand

Generous health insurance will make demand for healthcare more inelastic



Demand and Supply



Price Elasticity of Demand

- Calculating elasticities for health care is complicated and subject to considerable disagreement
- Next two slides show that consumer demand is relatively inelastic
  - Low responsiveness to changes in the price of medical care and pharmaceuticals

RAND Health Insurance Study

- Randomly assigned 7,000 individuals to 14 different insurance plans and one HMO
- Some plans had deductibles; others did not
- Copayments ranged from 0%-95% with a max out-of-pocket of $1,000 per participant
- Results:
  - Individual demand responds to cost sharing
  - Demand was 50% higher for those with free medical care than for those who paid 95% out of pocket

Sample Price Elasticities (see column 6 only for estimates)

TABLE 2—ELASTICITY ESTIMATES FOR TEN LARGEST COMMON DRUGS AND THERAPEUTIC CLASSES

Therapeutic class (1)	Drug example (2)	Claim share (3)	%ΔQ (4)	%ΔOOP (5)	Estimated elasticity (6)	
HMG-CoA reductase inhibitors	Lipitor	0.077	−31.9	136.1	−0.23	(0.002)
Beta-adrenergic blocking agents	Propranolol	0.067	−17.5	125.5	−0.14	(0.003)
Angiotensin-converting enzyme inhibitors	Lisinopril	0.047	−14.1	87.7	−0.16	(0.007)
Thiazide diuretics	Diuril	0.045	−27.0	84.2	−0.32	(0.006)
Thyroid agents	Levothyroxine	0.038	−18.1	21.4	−0.85	(0.029)
Dihydropyridines	Amlodipine	0.031	−19.5	138.0	−0.14	(0.004)
Proton-pump inhibitors	Omeprazole	0.030	−26.6	243.0	−0.11	(0.002)
Selective serotonin-reuptake inhibitors	Prozac	0.023	−16.4	111.5	−0.15	(0.005)
Angiotensin II receptor antagonists	Losartan	0.022	−29.3	74.8	−0.39	(0.008)
Opiate agonists	Morphine	0.022	−5.5	131.9	−0.04	(0.007)

Drug name (1)	Brand/generic (2)	Claim share (3)	%ΔQ (4)	%ΔOOP (5)	Estimated elasticity (6)	
Simvastatin	Generic	0.034	−10.8	110.8	−0.10	(0.006)
Lisinopril	Generic	0.028	−12.6	57.3	−0.22	(0.014)
Atorvastatincalcium	Brand	0.022	−48.3	143.3	−0.34	(0.003)
Levothyroxinesodium	Brand	0.021	−21.6	13.9	−1.56	(0.056)
Levothyroxinesodium	Generic	0.018	−13.9	38.8	−0.36	(0.027)
Amlodipinebesylate	Generic	0.018	−17.5	123.5	−0.14	(0.007)
Omeprazole	Generic	0.017	−24.3	242.9	−0.10	(0.003)
Warfarinsodium	Generic	0.017	−19.2	82.8	−0.23	(0.011)
Hydrocodonebitartrateandac	Generic	0.017	−3.7	98.5	−0.04	(0.011)
Hydrochlorothiazide	Generic	0.016	−20.4	38.1	−0.54	(0.025)

Notes: This table reports the estimated elasticities for the ten most frequently claimed therapeutic classes (top panel) and drugs (bottom panel). Column 3 reports the share of each class' claims in the baseline sample. Column 4 reports the estimated percentage change in the observed (relative to the predicted) claim propensity in December for individuals who enter the donut hole. Column 5 reports the associated percentage change in the out-of-pocket price. Elasticities—reported in column 6—are then estimated based on equation (1) with standard errors in parentheses (based on 100 bootstrap samples from which we estimate the change in claim propensity). See Section II for more details.

E.g.: -0.23; inelastic demand. A 10% increase in price results in 2.3% decrease in demand

Source: https://web.stanford.edu/~leinav/pubs/AEJPol2018.pdf