



Modeling Demand for Physicians in the U.S.

Presented to

**International Medical Workforce
Consortium**

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Forecasting “Requirements”

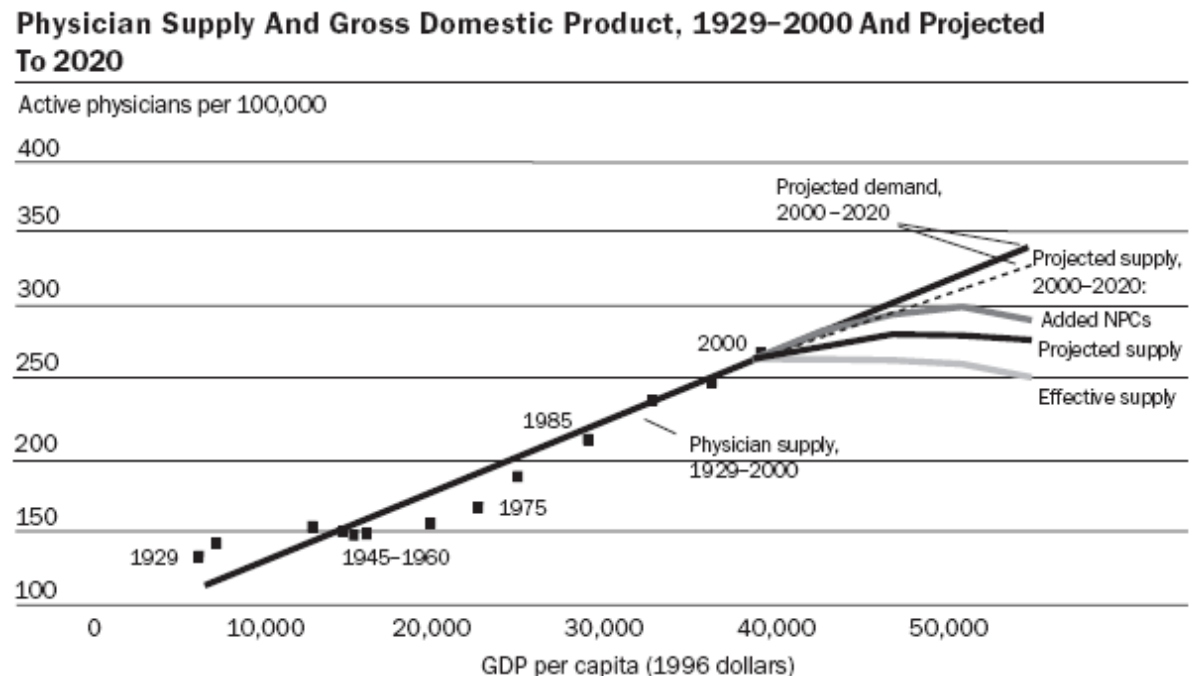
- Modeling approaches that have been used in the U.S.
 - Trend models and benchmarking: simple extrapolation
 - Needs models: estimates of what we think future healthcare utilization and service delivery patterns should be
 - Demand models: estimates of what do we think future healthcare utilization and service delivery patterns will be

Benchmarking Example

- Jonathan Weiner's work using used HMO staffing ratios
 - Weiner, JP. 1994. Forecasting the Effects of Health Reform on the U.S. Physician Workforce Requirements: Evidence from HMO Staffing Patterns. *JAMA*. 272: 222-230.
 - Weiner, JP. Prepaid Group Practice Staffing And U.S. Physician Supply: Lessons For Workforce Policy, *Health Affairs Web Exclusive*, February 4, 2004.
- Council on Graduate Medical Education (COGME) work in the mid 1990s relied heavily on the work by Weiner
 - COGME recommendations/workforce projections helped shift graduate medical education (GME) funding towards primary care and away from specialization
 - CMS put additional limits on GME training and made efforts to roll back number of funded residency/fellowship positions

Trend Model Example

- Cooper et al., 2002. Economic and Demographic Trends Signal an Impending Physician Shortage. *Health Affairs*. 21(1):140-154.
 - “The major trend affecting demand for physician services is the economy.”*
 - “Population growth is a second major factor that affects demand for physicians.”*
 - Conclusion:
physician shortfall
of 200,000 by 2020
(mostly shortfall
of specialists)



Source: Cooper et al. 2002.

General Principles of Demand-based Models

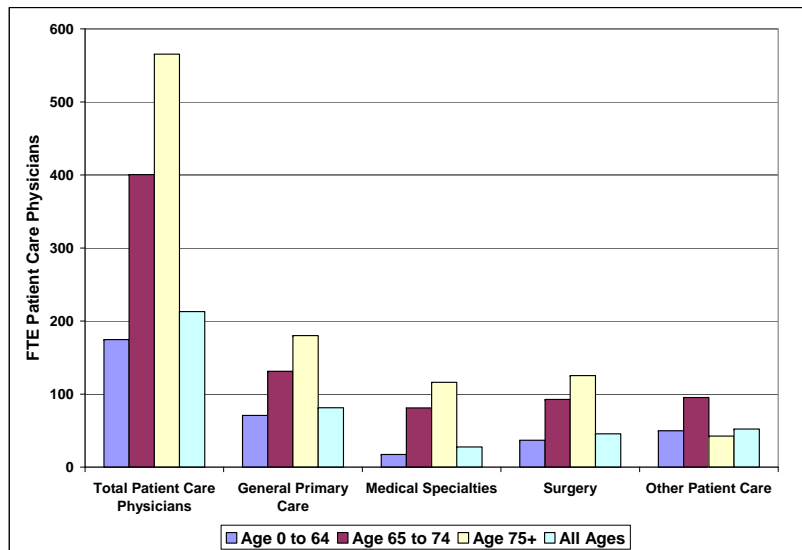
- What are the population's healthcare needs?
- What care is possible to provide given the current state of technology?
- What are we able and willing to pay for?
- What do we think the healthcare system will look like in the future?

Health Care Use and Delivery Patterns

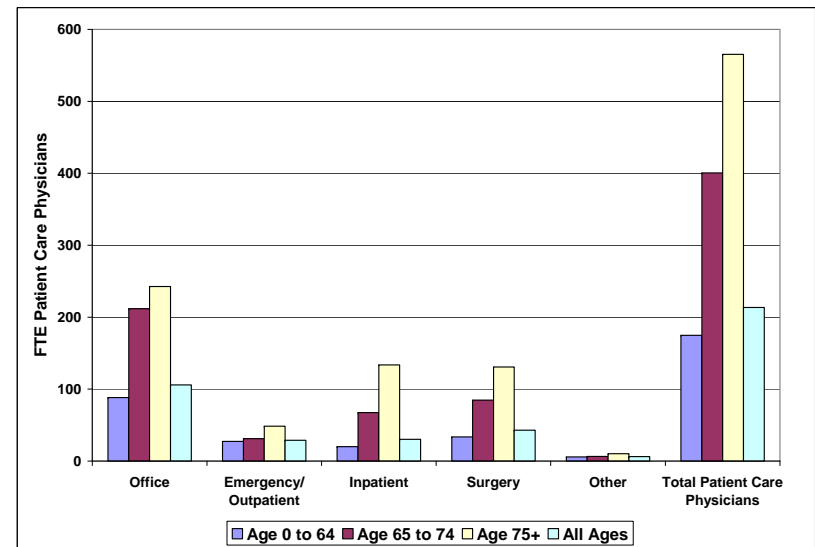
- Analyze per capita health care use by age, gender, race/ethnicity, and insurance status
 - National Ambulatory Medical Care Survey
 - National Hospital Ambulatory Medical Care Survey
 - Nationwide Inpatient Sample
- Combine health care use with estimates of full-time-equivalent physicians by health delivery activity (inpatient rounds, outpatient/emergency visits, office visits, surgery)
- Generate detailed physician-to-population ratios by demographic, insurance status, and delivery activity

Demand for Physicians Per 100,000 Population

Example by Specialty



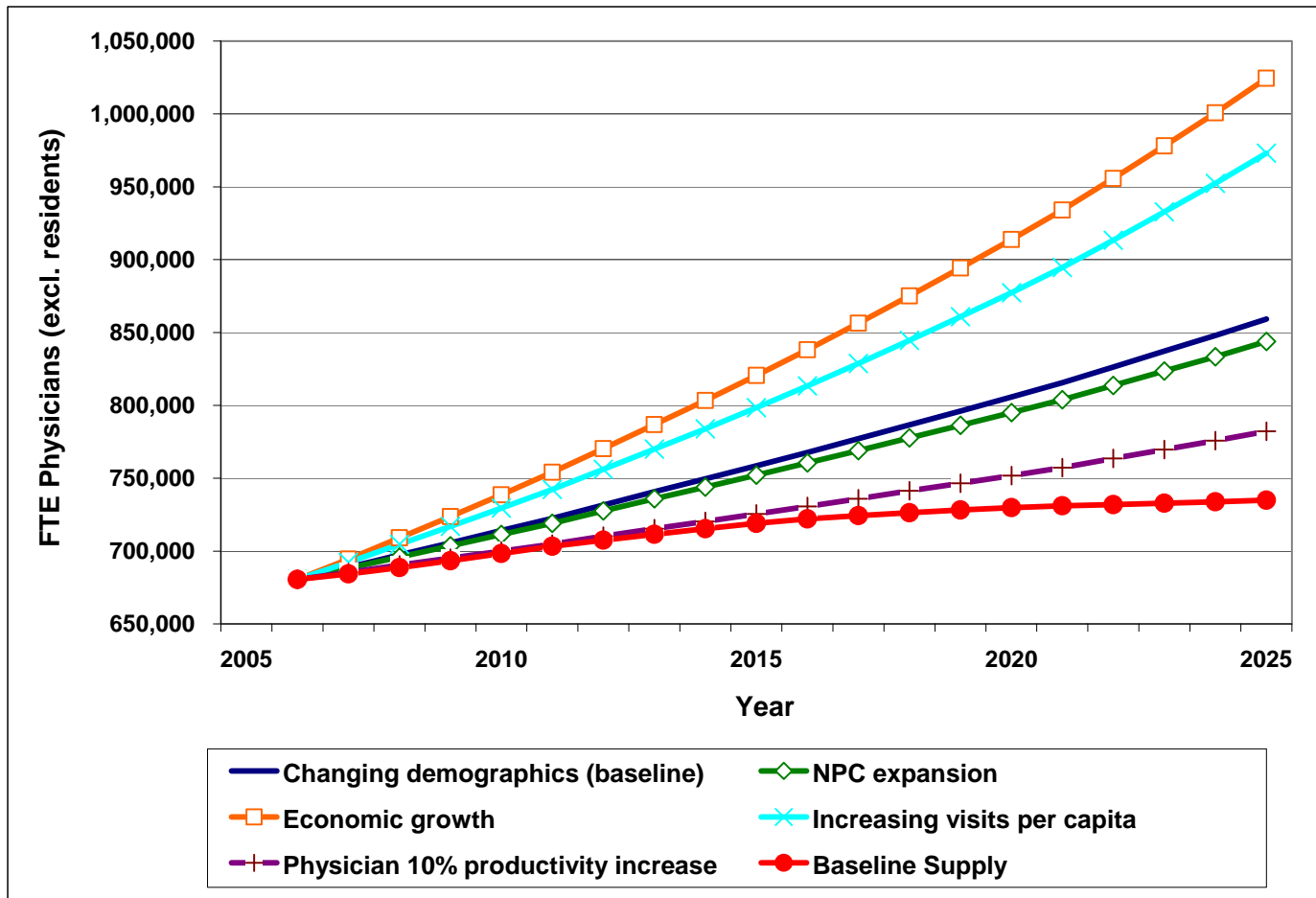
Example by Setting



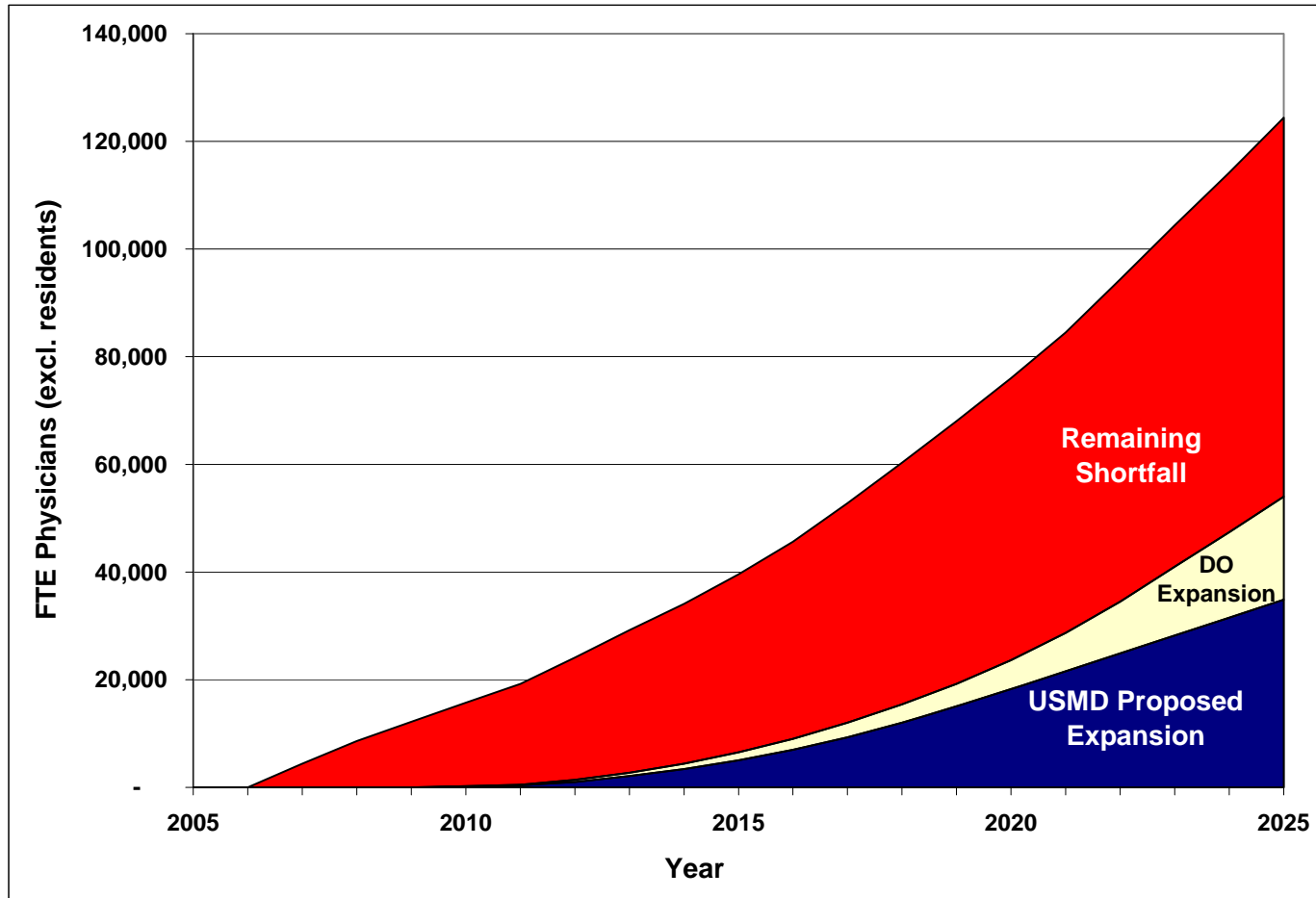
Source: Lewin Group Physician Supply and Demand Model

- Elderly use substantially more physician services than do the non-elderly
- Age impact varies by specialty
- Setting where care provided varies by age

Projected Full-time-equivalent Demand

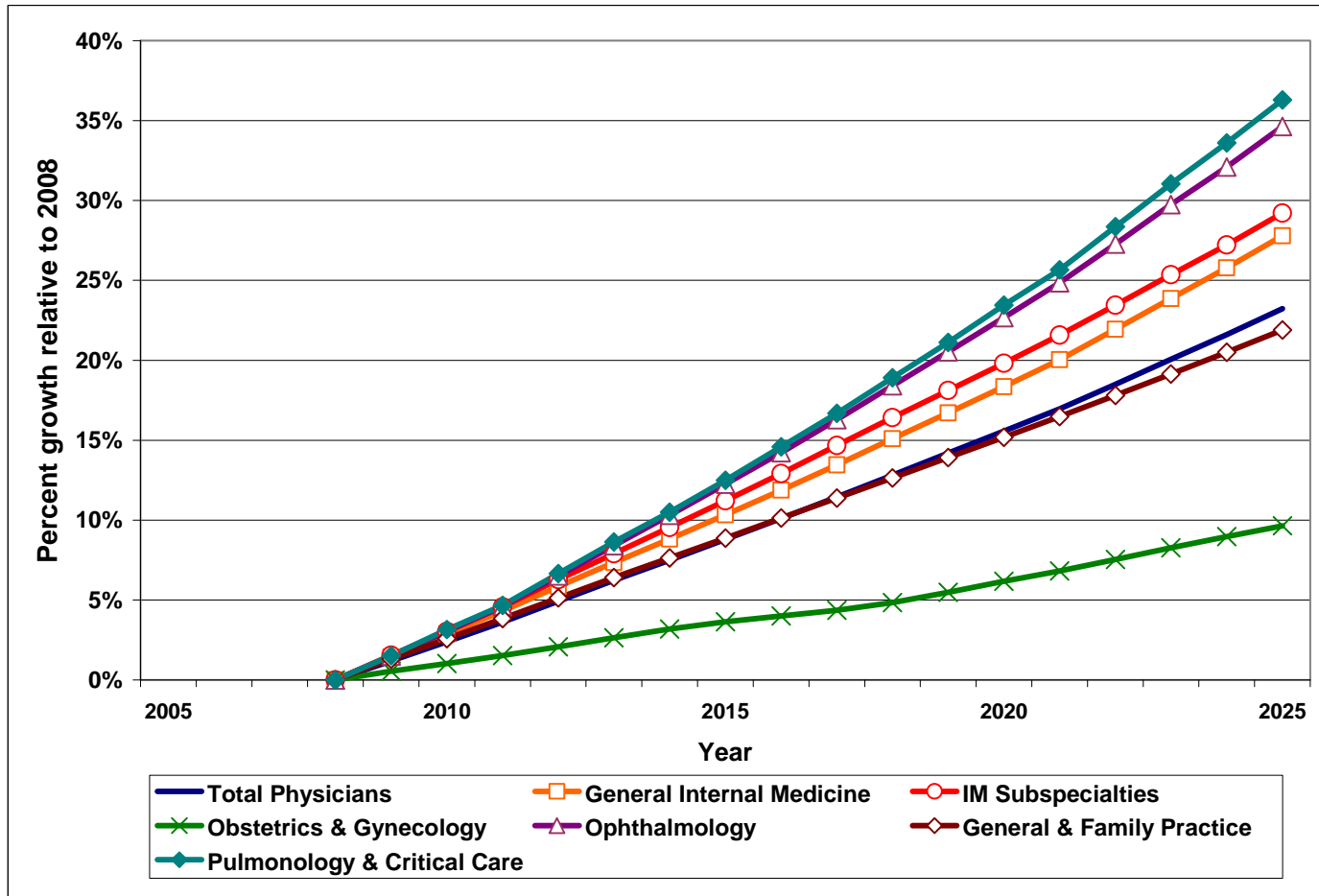


Projected National Shortfall of Physicians



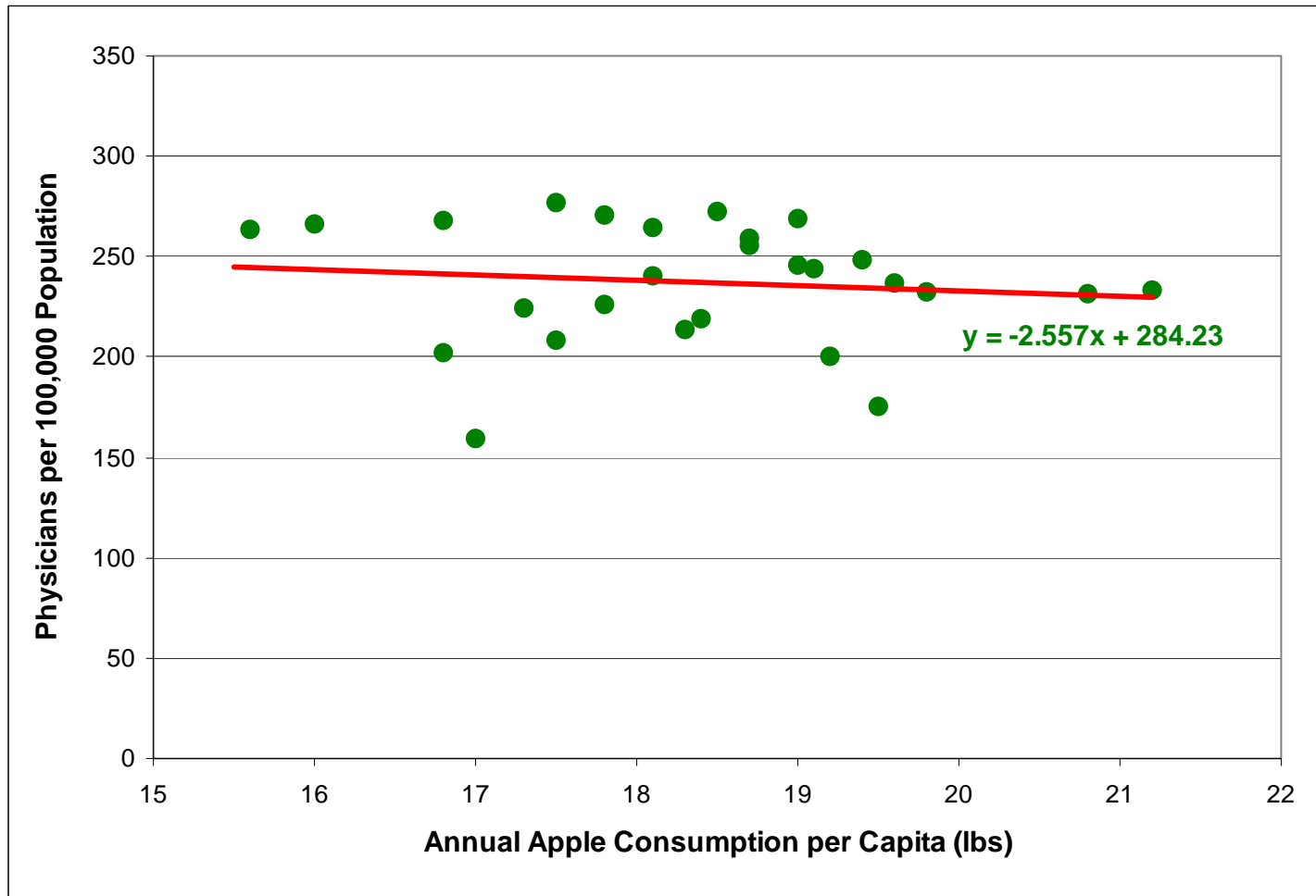
Source: The Lewin Group Physician Supply and Demand Model.
Estimates for forthcoming AAMC report, not for citation.

Impact of Changing Demographics on Percent Growth in U.S. Demand for Physicians (relative to 2008)



Source: Lewin Group Physician Supply and Demand Model

Tim's Trend Model: Consumption of 118,000 Apples Reduces Physician Demand by 1



Source: Analysis of US per capita apple consumption: 1970 - 2004