

A Quality-Adjusted Price Index for Colorectal Cancer Drugs

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Introduction

Colorectal drug prices rise significantly over study period

- Average regimen cost rose from \$127 in 1993 to \$36,000 by 2005
- Most of increase starts in 2002 (price still under \$2k in 2001)
- Clinical trial results suggest gain in life expectancy

Naïve price index ignores improving quality

Authors account for this with multiple approaches

- Hedonic price regression and two quality-adjusted price indices

Three approaches yield similar results

- Either price reductions or only modest price increases

Some Issues to Consider

RCT estimates versus “real-world” effects

- Even if no difference, effects may change over time

Effects for marginal versus average patients

- Who is taking the drug and how is this changing over time?

Limitations of aggregate data

Any detectable improvement in health outcomes data?

- Deaths per 100k from colon and/or rectum cancer were trending steadily down before new treatments (see table on next slide)
- No sharp change apparent when new expensive treatments diffusing rapidly

Effects on other types of health care spending

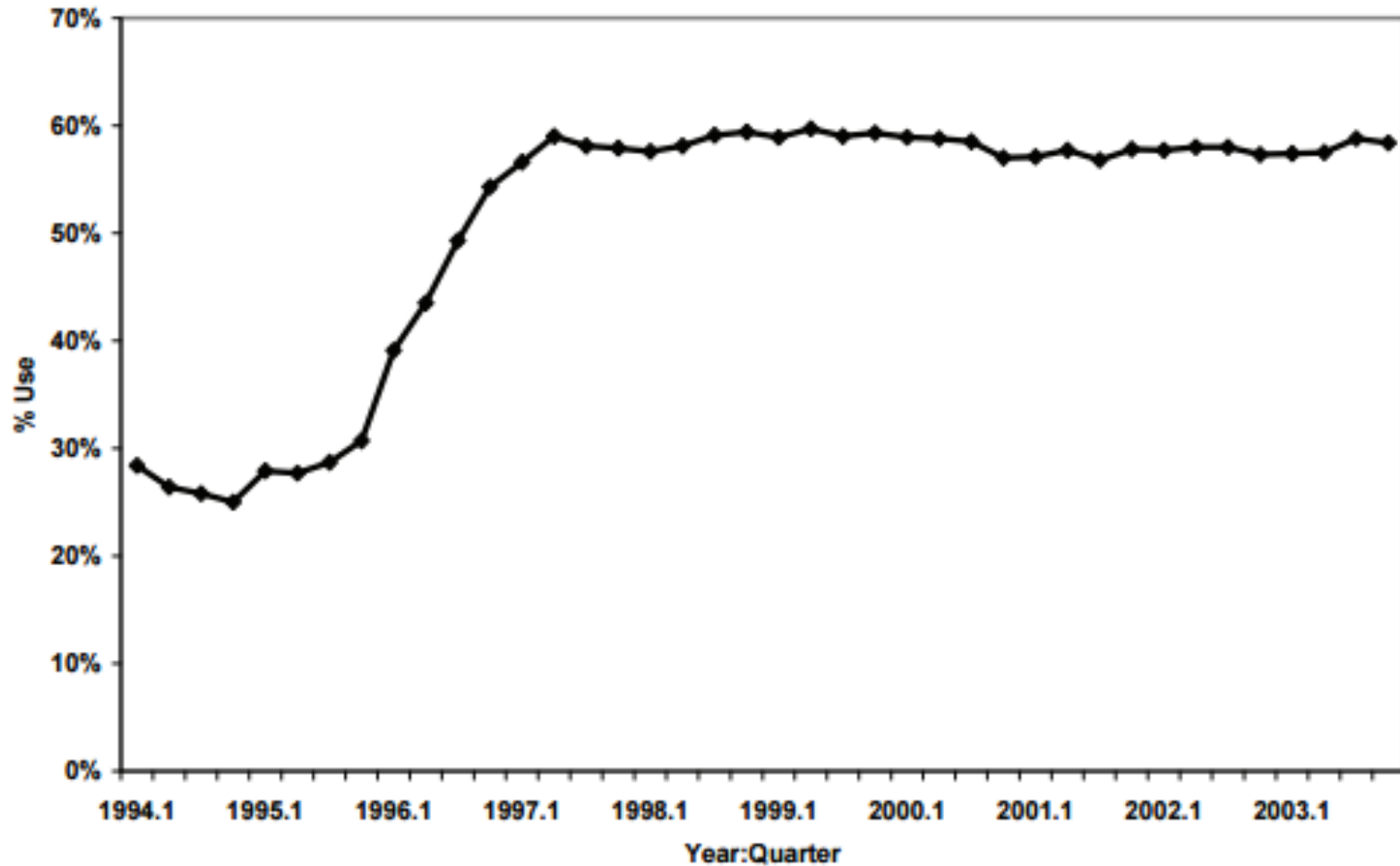
- Do new drugs “pay for themselves”?

Some more discussion of modeling assumptions

- Consider hedonic price regression $\ln(p_{it}) = \beta x_{it} + \sum \gamma_t d_t + \varepsilon_{it}$

Consider Diffusion of HIV Antiretroviral Treatments

Figure 3: Fraction of CA Medicaid Sample Taking 1+ HIV Drugs in Each Quarter



Source: Duggan and Evans, FHEP 2008

Deaths per 100k Residents from Colon and Rectum Cancer

<u>Year</u>	<u>Deaths per 100k</u>	<u>Change</u>
1984	27.3	
1987	25.9	-1.4
1990	24.6	-1.3
1993	23.3	-1.3
1996	21.9	-1.4
1999	20.9	-1.0
2002	19.8	-1.1
2005	17.6	-2.2
2008	16.5	-1.1
2011	15.1	-1.4

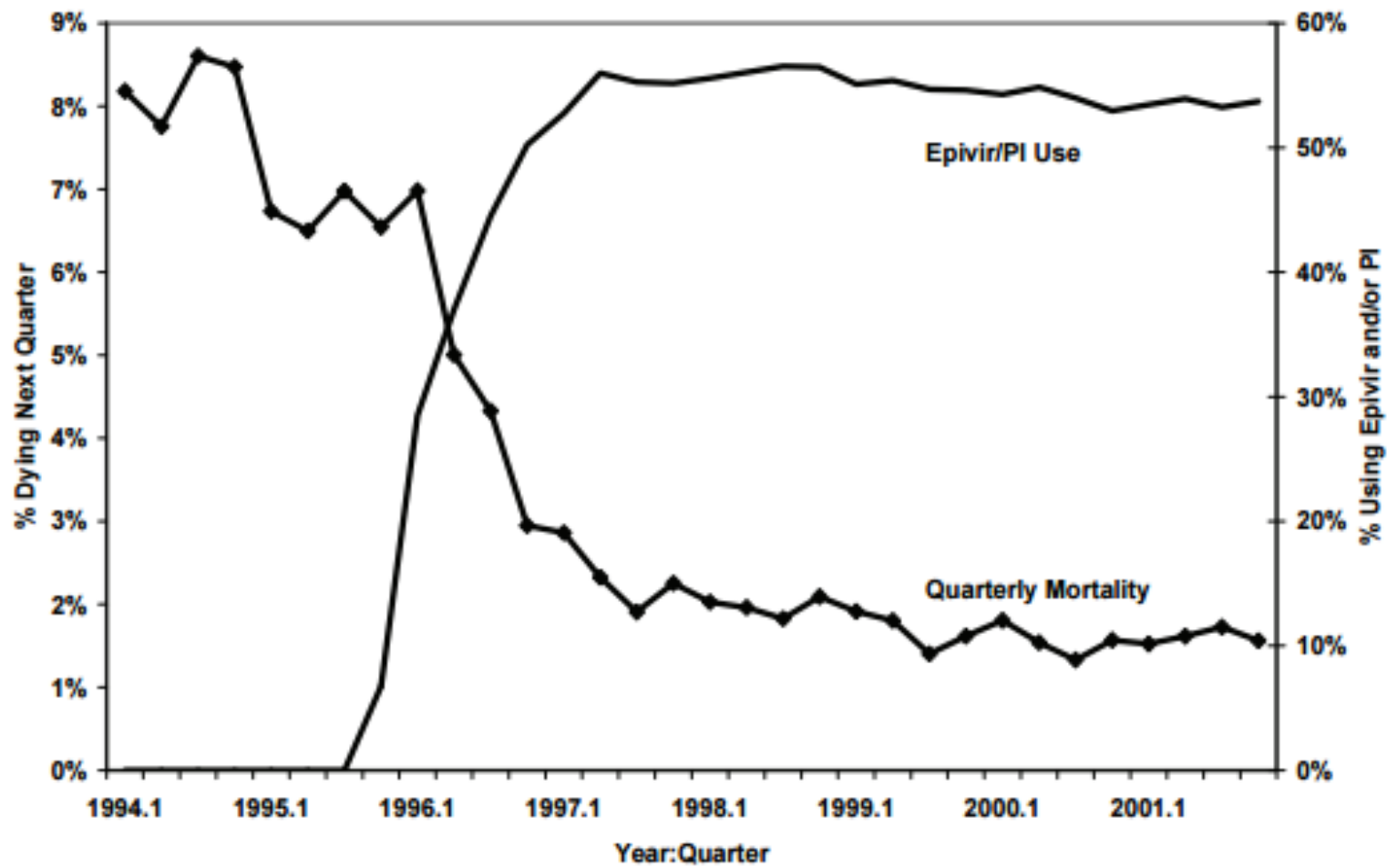
Higher drop from 2002 – 2005

- But why dropping throughout period?

Source: <https://seer.cancer.gov/statfacts/html/colorect.html>

HIV/AIDS Mortality Decline after Diffusion of New Treatments

Figure 5: Quarterly Mortality Rate and Use of PI/Evir



New Treatments May Offset (or Increase) Other Spending

Figure 6: Average Quarterly Spending in the Medicaid HIV/AIDS Sample

