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**The Elasticity of Demand
for Health Care**
A Review of the Literature
and Its Application to the Military
Health System

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Table 3.2
Key Studies with Price Elasticity Estimates for Specific Medical Services

Study	Method	Data/Population	Price Measure	Quantity Measure	Elasticity Estimates
Inpatient vs. Outpatient Services					
Newhouse and Phelps, 1974	Observational	Center for Health Administration Studies Survey, 1963	Coinsurance rates	Inpatient: length of stay Outpatient: no. of visits	Inpatient: -0.1 Outpatient: -0.1
Newhouse and Phelps, 1976	Observational	Center for Health Administration Studies Survey, 1963	Coinsurance rates	Probability of use	Inpatient: -0.17 Outpatient: -0.11
Newhouse et al., 1993	Experiment	RAND HIE	Coinsurance rates	Medical expenditures	Inpatient: -0.14 to -0.17 Outpatient: -0.17 to -0.31
Preventive vs. Acute Care					
Newhouse et al., 1993	Experiment	RAND HIE	Coinsurance rates	Medical expenditures	Preventive: -0.17 to -0.43 Acute: -0.17 to -0.32
Prescription Drugs					
O'Brien, 1989	Natural experiment	Prescription drug use in the United Kingdom	Copayments	No. of prescriptions	-0.33
Lavers, 1989	Natural experiment	Prescription drug use in the United Kingdom	Copayments	No. of prescriptions	-0.15 to -0.20
Harris et al., 1990	Natural experiment	Group Health Cooperative of Puget Sound	Copayments	No. of prescriptions	10.7% decrease after \$1.50 copay initiated
Smith, 1993	Observational	National prescription drug card service data	Coinsurance rates	No. of prescriptions	-0.10

Table 3.2 (continued)

Study	Method	Data/Population	Price Measure	Quantity Measure	Elasticity Estimates
Hughes and McGuire, 1995	Natural experiment	Data on prescription drug use in the United Kingdom	Copayments	No. of prescriptions	-0.35
Newhouse et al., 1993	Experiment	RAND HIE	Coinsurance rates	Expenditures on prescriptions	-0.17
Mental Health Services					
Hankin et al., 1980	Natural experiment	Columbia Health Plan claims data	Coinsurance rates	No. of visits	-0.02
McGuire, 1981	Observational	Joint Information Service Survey of office-based psychiatrists	Out-of-pocket costs	No. of visits	-1.0
Wells et al., 1982	Experiment	RAND HIE	Coinsurance rates	Expenditures on mental health care	-0.17
Wallen et al., 1986	Natural experiment	United Mine Workers of America medical claims data	Coinsurance rates	No. of visits	All: -0.32 Men: -0.50 Women: -0.31
Frank, 1985	Observational	Aggregate state-level data, 1970-1978	Price of psychiatric services	Per capita visits to psychiatrists	-1.0 to -2.0
Simon et al., 1996	Observational or quasi-experiment	Claims data from a large HMO	Coinsurance rates	Probability of using mental health services	-0.17 to -0.28

Price Elasticity of Demand for Prescription Drugs

The demand for prescription drugs is another category of medical services that has been analyzed in the literature. In 1983, Group Health Associates implemented a cost-sharing prescription drug plan in Washington state. Harris et al. (1990) analyzed the effect of a \$1.50 copayment on demand and found a 10.7 percent decrease in the number of prescriptions. A further increase in the copayment from \$1.50 per prescription to \$5 per prescription reduced prescriptions by an additional 10.6 percent.⁴ Using the numbers reported, we calculate the own-price elasticity of demand for prescription drugs to be between -0.05 and -0.08 , indicating inelastic demand.

In a similar study, Smith (1993) analyzed the effect of an increase in prescription drug copayments from \$2 to \$5 on prescription drug use for a set of employer groups covered by one national managed care company.⁵ This study found a price elasticity of demand for pharmaceuticals equal to -0.10 . This elasticity can be interpreted as a 1 percent increase in the price of prescription drugs leads to a 0.1 percent decrease in the number of prescription claims. Smith noted, however, that although the number of prescriptions fell in response to the price increase, there was an offsetting increase in the ingredient costs per prescription. This suggests that physicians compensated for the increased price to consumers by prescribing larger amounts per prescription. In addition, this study found that the increase in drug copayments led to a 10 percent decrease in employer costs per person and an increase in employee costs.

A number of studies of the price elasticity of demand for prescription drugs use data from the United Kingdom. Copayments for prescriptions were implemented beginning in 1968. O'Brien (1989) took advantage of the natural experiment and estimated a price elasticity of -0.33 . Further, the study found a positive cross-price elasticity of 0.17 between prescription and over-the-counter drugs. A positive cross-price elasticity indicates that two goods are substitutes in use. Hughes and McGuire (1995) used a more complicated estimation

⁴The \$1.50 and \$5 prescription drug copayments are equal to approximately \$4 and \$12, respectively, in 2000 dollars.

⁵The increase in copayments from \$2 to \$5 per prescription in 1989 dollars is equal to an increase from \$3.62 to \$9.06 in 2000 dollars.

model and found similar results using data from the United Kingdom. Lavers (1989), using data from the United Kingdom for the years 1971 through 1982, found prescription drug elasticities that were somewhat lower. His results suggest that a 1 percent increase in price will lead to a reduction in the number of prescriptions somewhere in the range of 0.15 to 0.20 percent.

Results from the HIE indicate that prescription drug use is responsive to cost-sharing. The per person prescription expenditure in the free care plan was nearly two times higher than the per person expenditure in the plan with a 95 percent coinsurance requirement (\$82 and \$46, respectively) (Newhouse et al., 1993). The reduction in drug expenditures, however, can be attributed in large part to the differences in visit rates between the two plans. The prescription drug cost per visit was found to be quite similar across plans. Since there was no independent variation in the prescription drug coinsurance (they were the same as the visit coinsurance rates), it is difficult to isolate the effect of price on prescription drug demand from the HIE data. The study concluded that the elasticity of demand for prescription drugs is similar to the elasticity of demand for health care in general.

Although there are numerous studies on the elasticity of demand for prescription drugs, very few focus on the elderly population (Grootendorst et al., 1997). This group should be of particular interest because they typically have higher medical care needs and costs and their population is growing rapidly. A study undertaken in Canada by Grootendorst et al. (1997) sought to fill this gap in the literature. They used data from the Ontario Health Survey to study the effect of first-dollar prescription drug coverage on drug use by seniors. At age 65, individuals in Ontario become eligible for the Ontario Drug Benefit Plan. The study compared prescription drug use before and after the statutory date of eligibility. The study found an upward shift in prescription drug use by seniors at age 65 even after controlling for health status and other demographic factors. In addition, the results suggest that the increase in prescription drug use is driven by increases in drug volume among users rather than by increases in the probability of any use. Consistent with this result is the finding that persons with poorer reported health status are more likely to increase prescription drug use with first-dollar coverage.