

# Contents

<i>Chapter</i>	<i>Page</i>
Glossary of Terms...	ix
Glossary of Acronyms.	x
CHAPTER1: INTRODUCTION AND EXECUTIVE SUMMARY	3
Background	3
Organization and Boundaries of the Case Study	4
Executive Summary	5
CHAPTER 2: VARIATIONS IN HOSPITAL LENGTH OF STAY	9
CHAPTER 3: LENGTH OF STAY AND OUTCOME: MYOCARDIAL INFARCTION	25
CHAPTER 4: LENGTH OF STAY AND OUTCOME: ELECTIVE SURGERY	31
CHAPTER 5: LENGTH OF STAY AND OUTCOME: OBSTETRICS	37
CHAPTER 6: LENGTH OF STAY AND OUTCOME: PSYCHIATRY	43
CHAPTER 7: SUMMARY AND IMPLICATIONS FOR RESEARCH AND POLICY	49
Summary	49
Implications for Research	53
Implications for Policy.	53
Appendix A. Length of Stay and Outcome: Myocardial Infarction	57
Appendix B. Length of Stay and Outcome: Elective Surgery	67
Appendix C. Health Program Advisory Committee and Acknowledgments	75
References	79

## Tables

<i>Table No.</i>	<i>Page</i>
1. Admission and Days of Care Per 1,000 Population by Census Region in 1980.	11
2. Age and Sex Distribution of Hospitalized Patients by Census Region in 1980.	12
3. Age and Sex Adjusted Length of Stay by Region in 1980	12
4. Diagnosis-Specific Length of Stay by Region: 1980	13
5. Distribution of Cases by Diagnosis by Region: 1980	13
6. Case-mix Adjusted Length of Stay by Region: 1980	14
7. Highest and Lowest DHHS Regions for Medicaid Length of Stay in 1980 by Diagnosis Related Group	14
8. 1978 Length of Stay Data for Utah and Central Massachusetts PSROs by Source of Payment.	15
9. Regional Differences in Length of Stay, Intensity of Service, and Mortality Rates From the Stanford Institutional Differences Study	17
10. Populations Studied for Length of Stay Associations	19
11. Factors Found To Be Associated and Unassociated With Length of Stay	19
12. Regional Trends in Length of Stay for Uncomplicated Delivery,	38
13. Case Mix Differences Between Baltimore and Portland	49
14. Summary of RCTs	51
A-1. Uncontrolled Studies of Early Mobilization and Discharge for MI Patients	60
A-2. Randomized Clinical Trials of Early Discharge for MI Patients	63
A-3. Power of Randomized Clinical Trials on Early Discharge for MI Patients	65
B-1. Randomized Clinical Trials in Outpatient and Short-Stay Elective Surgery	71

## Figures

<i>Figure No.</i>	<i>Page</i>
1. Age-Specific Trends in Hospital Length of Stay	9
2. Regional Differences in Hospital Length of Stay: Trends Over Time	10
3. Regional Trends in Length of Stay for Myocardial Infarction.	25
A-1. Regional Trends in Length of Stay for Myocardial Infarction	58
B-1. Regional Trends in Length of Stay for Patients With Inguinal Hernia	74

# Glossary of Terms

**Case mix:** The relative frequency of various types of patients, reflecting different needs for hospital resources. There are many ways of measuring case mix, some based on patients' diagnoses or the severity of their illnesses, some on the utilization of services, and some on the characteristics of the hospital or area in which it is located.

**Effectiveness:** Same as efficacy (see below) except that it refers to average or actual conditions of use.

**Efficacy:** The probability of benefit to individuals in a defined population from a medical technology applied for a given medical problem under ideal conditions of use.

**Length of stay (LOS):** The number of days a patient remains in the hospital from admission to discharge.

**Medicaid:** A Federal program that is administered and operated individually by each participating State government that provides medical benefits to certain low-income persons in need of health and medical care.

**Medical technology:** The drugs, devices, and medical and surgical procedures used in medical care, and the organizational and supportive systems within which such care is provided.

**Medicare:** A nationwide, federally administered health insurance program authorized in 1965 to cover the cost of hospitalization, medical care, and some related services for eligible persons over age 65, persons receiving Social Security Disability Insurance payments for 2 years, and persons with end-stage renal disease. Medicare consists of two separate but coordinated programs—hospital insurance (part A) and supplementary medical insurance (part B). Health insurance protection is available to insured persons without regard to income.

**Morbidity:** A measure of illness, injury, or disability in a defined population. It is usually expressed in general or specific rates of incidence or prevalence. Sometimes used to refer to any episode of disease. See also "mortality (death)."

**Mortality (death):** A measure of deaths, used to describe the relation of deaths to the population in which they occur. The mortality rate (death rate) expresses the number of deaths in a unit of population within a prescribed time.

**p value:** In a randomized clinical trial, the probability of concluding that there is a difference between the treatment groups when, in fact, there is none. Also called "Type I error" or "alpha" and commonly

called the "level of statistical significance;" analogous to "false positive."

**Professional Standards Review Organizations (PSROs):** Community-based, physician-directed, nonprofit agencies established under the Social Security Amendments of 1972 to monitor the quality and appropriateness of institutional health care provided to Medicare and Medicaid beneficiaries.

**Randomized clinical trial (RCT):** An experimental design by which human or animal subjects are randomly assigned either to an experimental group (in which subjects receive the treatment being studied) or to a control group (in which subjects do not receive the treatment being studied). Also referred to as "randomized controlled clinical trial" or "controlled clinical trial."

**Reliability:** A measure of the consistency of a method in producing results. A reliable test gives the same results when applied more than once under the same conditions. Also called "precision."

**Risk:** A measure of the probability of an adverse or untoward outcome and the severity of the resultant harm to health of individuals in a defined population and associated with use of a medical technology applied for a given medical problem under specified conditions of use.

**Safety:** A judgment of the acceptability of risk (see above) in a specified situation.

**Validity:** A measure of the extent to which an observed situation reflects the "true" situation. *Internal validity* is a measure of the extent to which study results reflect the true relationship of a "risk factor" (e. g., treatment or technology) to the outcome of interest in study subjects. *External validity* is a measure of the extent to which study results can be generalized to the population that is represented by individuals in the study, assuming that the characteristics of that population are accurately specified.

**Statistical significance:** See "p value."

**Statistical power:** In a randomized clinical trial, the probability of detecting a difference between the treatment groups when one does exist. Failure to detect an effect is called "Type II error" or "beta;" analogous to "false negative."

**Synthesis:** The integration of findings from different studies and the development of generalizations based on their results.

**Type I error:** See "p value."

**Type II error:** See "statistical power."

# Glossary of Acronyms

CHF — congestive heart failure  
DRG — Diagnosis Related Groups  
IOM — Institute of Medicine  
LOS — length of stay  
MI — myocardial infarction  
NCHS — National Center for Health Statistics  
PAS — Professional Activities Survey  
PSRO — Professional Standards Review  
Organization

BCPSRO — Baltimore City PSRO  
BPSRO — Baltimore area PSRO  
CMPSRO — Central Massachusetts PSRO  
CM-PSRO — Central Maryland PSRO  
MFMC — Multnomah (Portland, Oreg. )  
Foundation for Medical Care  
UPSRO — Utah PSRO  
RCT — randomized clinical trial