

CONTENTS

	<i>Page</i>
<i>Preface</i>	vii

Part One THE NEED

Chapter

I. MEDICINE'S NEED FOR COMPUTERS	5
Research	5
Teaching	6
Practice	7

Part Two THE DATA

II. THE SIGNIFICANT MEDICAL RECORD	13
Components of the Patient Record	14
Changes in the Patient Record	15
III. DISEASE NOMENCLATURE	18
More About Numbers	22
The Intelligent Inquirer	22

Part Three COLLECTING DATA

IV. CHOICE OF MEDIA	31
V. DATA WHICH CLERICAL PEOPLE CAN ACQUIRE	34
Hospital Systems	34
Patient-Numbering Schemes	34
Data From Physician and Patient	35
Image Processing	41
Psychological Tests and Vital Signs	43
Physiological Monitoring	43
Nurses' Notes	43

<i>Chapter</i>	<i>Page</i>
VI. DATA VOLUNTEERED BY THE COMPUTER	45
Simple Processing of Traditional Hospital Data	46
Automation of Medical Interpretations	46
Implementation of Hospital Administration Decisions	47
Gratuitous Laboratory Studies	48
Indication of Associations	48
Interrogative History	49
Physical Examination	49
Literature Citations	49
Differential Diagnosis	50
Patient Routing	50
VII. LABORATORY DATA SYSTEMS WITHOUT COMPUTERS	51
Prepunched-Card System for Laboratory Data	53
Use of Result Cards	58
Experience With the System	61
Limitations of the System	62
VIII. DATA PROCESSING WITH AN IN-HOSPITAL COMPUTER	63
In-Line and On-Line Computers	63
Orientation of a Hospital System	64
Justification	65
Missouri Computer Laboratory Data-Transmission System	66
Missouri Surgery Information System	77
Other Selected Hospital Computer Applications	88
Systems for Diagnosis	89
Summary	89

Part Four

SPECIFIC APPLICATIONS OF COMPUTERS IN THE HOSPITAL

IX. TECHNICAL ASPECTS OF MISSOURI COMPUTER LABORATORY DATA-	
TRANSMISSION LIMITS SYSTEM	93
Bacteriology	93
Chemistry	100
Hematology	110
Types of Reports	118

<i>Chapter</i>	<i>Page</i>
X. MISSOURI TEACHING PROGRAMS	120
Laboratory Inquiry Routine	120
SHOW-ME Inquiry Routine	120
CASE Inquiry Routine	121
Statistical Analysis by Computer System	126
Hospital Diagnosis Inquiry Routines	127
Computer Routine CONSIDER	135
Deficiencies and Problems	140
Audiovisual Teaching Materials	141
XI. QUALITY CONTROL IN THE HOSPITAL LABORATORY	143
Basis of Initial Computer Approaches	144
Possible Future Computer Quality Control	149
The Computer System: An Essential Element	150
XII. PATTERN RECOGNITION	151
Definition and Importance	151
How Patterns are Recognized in Medicine	152
Information Science Approaches to Pattern Recognition	161

Part Five

THE HOSPITAL COMPUTER FACILITY

XIII. ORGANIZATION OF A COMPUTER GROUP	167
The Environment	167
Selection of Personnel	168
Training of Programmers	169
Computer Languages	169
Operating Systems	170
Computer Personnel	171

Part Six

THE FUTURE

XIV. THE FUTURE ROLE OF COMPUTERS IN MEDICINE	179
Services to the Physician	179
The Present Problem	181
<i>Apologia</i>	190
<i>References</i>	191
<i>Index</i>	197