# Contents

### 1 Introduction, Summary, and Options 1

Challenges and Opportunities for Information
Technologies 2
Trends in the Health Care System 5
Congressional Interest 9
Report Summary 10
Other Applications 23

## 2 Information Technologies for Transforming Health Care 29

Islands of Automation 30
The Life Cycle of Health Information 34
Key Technologies for the Emerging Health Information
Infrastructure 42
Sharing the Common Pool of Data 68
Policy Issues and Options 73

#### 3 Networks for Health Information 79

Administrative Simplification 80
Administrative Activities in Health Care 83
Provider Administrative Activities 83
Exchanging Information Between Providers and Payers 84
Linking Health Care Providers With Suppliers 93
Pharmaceutical Industry EDI 94
Community and Regional Networking 95
Costs and Cost-Effectiveness 103
Policy Implications of Electronic Health
Information 109
Policy Considerations for Congress 118

# 4 Using Information Technology to Improve the Quality of Health Care 123

Clinical Decision Support 124
Performance Assessment 142
Conclusions 152



# 5 Telemedicine: Remote Access to Health Services and Information 159

Telemedicine's Potential Effects 160
Telemedicine Applications 165
Telemedicine Issues 177
Telemedicine Policy Options 187

### **APPENDICES**

- A Workshop Participants 193
- B Reviewers and Contributors 195
- C Applications of Clinical Decision Support Systems 197
- D Executive Branch Telemedicine Activities 201
- E Electronic Health Information Sources 207
- F Boxes, Figures, and Tables 213
- G Abbreviations and Glossary 215