Index

A

Agency for Healthcare Research and Quality (AHRQ) 26, 225, 227
albuterol 78, 79, 81, 82, 83, 85, 92, 93
Amycolatopsis 18
analytic data warehouse 405
angioplasty 47, 49, 50, 51, 52, 54, 55, 64, 65, 67, 68, 69, 70, 71
antibodies 79
Anti-igE monoclonal antibodies 79
applied decision 275
ARIMA (Auto regressive Integrated Moving Average) 115
ARIMA model 7, 135, 141
arsenic 121
artery 47, 48, 49, 50, 51, 52, 54, 55, 65, 66, 67, 69, 70, 71, 73, 74, 75, 76, 77
Arthroscopic surgeries 151
Artificial Neural Network (ANN) 254, 284, 294, 296, 297, 298, 302
asbestos 121
ASCII format 411
asthma 78, 79, 80, 81, 82, 87, 92, 93, 95, 96, 97, 98, 99
asthma symptoms 79
Autocorrelation 6
autocorrelation function 337, 345, 346
autocorrelations 7
AUTOREG procedure 299
autoregressive 7
autoregressive integrated moving average (ARIMA) 81
autoregressive integrated moving average (ARIMA) model 81, 336
autoregressive models (AR) 336
autoregressive moving average models (ARMA) 336
Azithromycin 327, 355, 356, 358, 360
B
bacteria 16, 18
balloon angioplasty 47, 49, 52
bare-stent 54, 64, 65, 66, 67, 68, 71
beneficiary demography 173
beta-2 agonists 79
binary distribution 175
Biopsies 122
black box 6
blood vessels 48
Body Mass Index 245, 246, 247, 254
bootstrap 200, 201, 202, 203, 204, 205, 206
bootstrap confidence interval methodology 206
bootstrap estimate 202
bootstrap replications 202
brachytherapy 123
brand name 328
breast cancer treatments 101
bronchoscope 122
bronchoscopy 122
budesonide 79, 81, 83, 92
by-pass (CABG) surgery 50
bypass surgery 47, 48, 52, 54, 55, 56, 59,
60, 61, 62, 63, 64, 66, 67, 69, 70,
71, 73, 74, 75

C

cardiopulmonary rehabilitation program 167
cardiopulmonary research 145
carve-out services 33
CATX 125, 134
CATX function 27, 28, 34
CATX statement 125, 176, 188
Centers for Disease Control (CDC) 248, 306
Cephalexin 327, 352, 353, 354, 355, 356,
358, 360, 366
Cephalosporin 327
cerebrospinal fluid (CSF) 225
cervical cancer 266, 267
chemical treatment 123
chemotherapy 122, 123
chest X-ray 121
childhood physical health 245
Chi Square Automatic Interaction Detection
(CHAID) 6, 403
chromatography 18
Chronic Condition Data Warehouse 173, 175
chronic disease 78
chronic kidney disease 174, 178, 180, 181,
182, 190, 191, 193, 194
Cipro 327, 341, 342, 343, 344, 345, 346,
347, 348, 349, 351, 355, 356, 358,
360, 363
ciprofloxacin 327
Clarithromycin 327, 355, 356, 357, 359
Classification and Regression Trees (CART) 6, 403
clean data 4
clinical decision-making 118
Clinical Modification 103
COBRA 33
code format 35
cognitive functioning 399, 411, 416, 419

Cognitive Neuropsychology 399
community-associated MRSA (CA-MRSA) 16
co-morbidities 126
complex internal structure 2
complex systems 294
computed internal structure 226
Confidence interval theory 199
Core Biopsy 122
coronary arteries 48, 77
Coronary Artery Bypass Graft (CABG) 48
coronary artery bypass surgery 47, 52
coronary artery disease 47, 48, 50, 52, 54,
55, 66, 67, 69, 70, 75, 76, 77
cost analysis approach 225
CPT-4 procedure codes 33
CPT codes 9, 154, 163
crucial artery 48
CT scan 121, 123, 275
culminating 145
CYPHER 51, 52

D
data analysis 247, 254, 267, 271
data elements 124, 125
data files 26, 34, 36
data fusion 145, 146, 147, 148, 149
data fusion methodology 145, 146
data mining 2, 3, 4, 7, 8, 10, 11, 12, 15,
18, 28, 43, 44, 146, 149, 150, 151,
166, 275, 294, 303, 401, 402, 403,
404, 405, 411, 412, 416, 418
data mining algorithms 401, 402, 418
data mining approach 3, 245
data mining software 404
data mining technique 2, 10, 146, 149, 150, 166
data mining tools 403, 405
data partition 247
data prior 4, 7
data processing 47, 55, 68, 69
data set 23, 24, 25, 26, 42, 173, 174, 175,
176, 189
data sources 124, 148, 151
data visualization 2, 4, 5, 78
data warehouse 401, 402, 403, 404, 405
decimal point 27, 35
decision matrix 393
decision-support applications 53
Decision Tree 247, 254, 257, 258, 267, 279, 284, 294, 295, 296, 302, 372, 391, 393, 395, 396
decode information 411
dental data 199, 203, 204, 206
depression 218, 219
development environment 218
diagnosis code 27, 125, 128, 140, 152, 192
diagnosis related group (DRG) 17, 370
Diagnostic Imaging 121
discrete wavelet transform 405, 406, 412, 413, 416
disproportionate share hospital (DSH) 370
disproportionate share hospital (DSH) adjustment 370
Dmine Regression 257
Doxycycline 327, 357, 358, 359, 360
DRG assignment 369
DRG codes 9, 17, 27
drug-eluting stent (DES) 47, 48, 50, 51, 52, 54, 55, 56, 59, 60, 61, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75
dyspepsia 219

E

EDF format 416
EEG data 399, 400, 401, 411, 416
EEG node 410
Electroencephalography 411, 416, 419
electronic medical records (EMR) 275
Emergency Department (ED) 305
emergency department information system (EDIS) 276
Emergency Medical Treatment and Labor Act (EMTALA) 307, 368, 397
end-user business model 405
Enterprise Guide 4 100, 101, 102, 104, 107, 109, 116
Enterprise Miner 151, 158
entropy reduction 281
Episode Grouping 53
erthyromycin 327
etiologic agents 118

European Data Format (EDF) 411
Events per Variable (EVP) 227
External stage SCLC 122
External Radiation Therapy 123

F

father wavelet φ 405, 412, 416
female cancer mortality 120
filter coefficients 406, 412
FIM 152, 167, 169, 170
fiscal year (FY) 371
flunisolide 79, 81, 83, 92
Fluoroquinolones 327
fluticasone 79, 99
Food and Drug Administration (FDA) 50, 59
forecasting models 63, 64, 66
forecasting system 59
formalisms 2
formoterol 79, 81, 83, 92
functional independence measure scores (FIM) 152

G

gastroenterology 218
gastrointestinal problems 218
gastrointestinal symptoms 218, 219, 223
GCV error prediction 410, 414
generalized cross validation (GCV) 410
Generalized Linear Mixed Models (GLIMM) 294, 296
Generalized Linear Models (GLIM) 178, 296, 388, 389, 390, 391, 396
General Linear Model 91
generic name 328
generic product ID (GENERID) 36
Geographic data 309
Geographic Information Systems (GIS) 308
GIS technology 310
GLIMMIX model 175
GLIMMIX procedure 175, 185, 186, 290
global models 2
glucose 174
gold standard 1
gross domestic product (GDP) 225
Index

H
HCPGS formats 35
HDR brachytherapy 123
Health Behavior in School-Aged Children (HBSC) 246
Healthcare Cost and Utilization Project (HCUP) 26, 124, 227, 242, 243
Healthcare Cost Utilization Project (HCUP) 81
healthcare decision making 2
Health Care Financing Administration (HCFA) 307
health-care utilization 218
health risk behaviors 245
heart bypass surgery 54, 55, 59, 66, 69
heterogeneous data 2
heterogeneous populations 2
HIPAA de-identification 102, 115
HIPAA recommendations 276
histopathologist 118
hormonal status 79
HPFDIAGNOSE procedure 343, 344
HPFENGINE procedure 343, 344
HPF procedure 62, 63, 64, 65, 66
HPF system 63
HPV 265, 266, 267, 273, 274
HPV vaccination 267
HPV vaccine 265, 266, 267, 273, 274
H.pylori bacterium 219
human respiratory system 78
hyperbolic tree display 23
hypercholesterolemia 178, 181, 190, 191
hyperlipidemia 178, 181, 182, 190, 191
hypertension 9
I
IBS patients 218, 219, 223, 224
ICD9 codes 9, 17, 28, 31, 32, 123, 125, 21
ICD9 diagnosis code 102
ICD codes 154
ill-posed problems 408
immune systems 16
indirect medical education (IME) 370
indirect medical education (IME) adjustment 370
infiltration 118
Inpatient Prospective Payment System (IPPS) 369
intelligence data 148
interactive business analysis tools 405
invasive treatment 54
irritable bowel syndrome 218, 219, 223
K
Kernel density 149, 150, 378, 379, 389
kernel density estimation 1, 4, 81, 84, 98, 102, 103, 105, 107, 109, 127, 140, 150, 225, 227, 229, 232, 233, 234, 235, 247, 328, 345, 361, 363
Kernel Density Estimator 247
L
learning disorders 399, 418
Length of Stay (LOS) 101, 102, 104, 107, 112, 113, 125, 127, 132, 133, 134, 137, 275
Levoflaxacin 327
life-or-death 276
Limited-stage SCLC 122
linear model 81, 91, 96, 149, 173, 175, 177, 178, 179, 185
linear regression 225, 227, 238
linezolid 18, 24, 43, 44
Linezolid injection 32
lipid metabolism 9
lobectomy 122
logistic model 3, 134, 141, 225
logistic regression 3, 6, 175, 182, 184, 225, 227, 229, 236, 238, 254, 257
logistic regression model 102, 108
lung cancer 118, 119, 120, 121, 122, 123, 125, 126, 127, 128, 129, 130, 134, 136, 137, 138, 139, 140, 141, 142, 143
lungs 118
lung cancer detection 121
lung cancer staging 122
lung carcinoma 118

M
Macrolides 327
magnetic resonance imaging (MRI) 226
Major Diagnostic Categories (MDC) 369
malignancies 101, 116
malignant cells 118
malignant neoplasm 123, 129, 130, 138, 140
market basket analysis 2, 3, 5, 150
MarketScan 15, 19, 32, 33, 34, 42, 43
MarketScan data 104
Massive data collection 401
mean absolute error (MAE) 330, 335
mean absolute percent error (MAPE) 330, 335
mean square error (MSE) 330, 335
Medicaid payments 327, 328, 352, 353, 365, 366
Medical data 275, 276
Medical Episode Group 53
Medical Expenditure Panel Survey (MEPS) 101, 375, 396
medical technology 125
MedStat 15, 19, 34, 42, 43
MEPS data 101, 102, 108, 109, 110, 115
MEPS dataset 111, 114
metadata 405
metastasis 118, 121
meteorology 148
Methicillin-Resistant Staphylococcus Aureus (MRSA) 16
methodology 1, 4, 5, 11
misclassification 283, 284, 296, 303
Model Assessment 247, 258
model building 18
Model Comparison node 254, 257
model selection 284, 330, 335, 343
model set 281
montelukast 79, 81, 82, 83, 85, 92
mother wavelet ψ 405, 412, 416
moving average models (MA) 336
MRI 121, 139
MRSA 16, 19, 20, 21, 22, 23, 24, 25, 26, 42, 45, 46
MRSA-infected diabetic 19, 20, 45
multivariate modeling 226

N
national database 118
National Health and Blood Institute (NHLBI) 80
National Inpatient Sample (NIS) 15, 124, 219, 225, 227
National Inpatient Survey (NIS) 101
National Institute for Health and Clinical Excellence 52, 76, 77
National Institutes of Health (NIH) 79
NDC number (NDCNUM) 36
Needle Aspiration 122
negative self-image 245
neonatal hemorrhage 228, 237, 238, 239, 240
Nephritis 191
nephropathy 174, 191
neural network 257, 393
neuropsychological domains 407, 413
Neuro Science 399
NIH asthma treatment guidelines 80
NIS data 26, 101, 102, 107, 108, 109
NIS (National Inpatient Sample) 26
non-asthma patients 81, 95, 96
non-hydrocephalic infants 225
non-infectious conditions 219
non-infectious digestive diseases 219
non-labor share 370
nonparametric 200, 201, 216
non-parametric way 81, 103
non-small cell 118, 122, 123
non-small cell lung carcinoma (NSCLC) 118
non-urgent care 305, 306, 307, 308
non-urgent users 307
normal cognitive functioning 399
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCLC stage I 122</td>
</tr>
<tr>
<td>NSCLC stage II 122</td>
</tr>
<tr>
<td>NSCLC stage III 122</td>
</tr>
<tr>
<td>NSCLC stage IV 122</td>
</tr>
<tr>
<td>O</td>
</tr>
<tr>
<td>Obesity 245, 246, 249</td>
</tr>
<tr>
<td>Obstructive sleep apnea syndrome (OSAS) 406, 413</td>
</tr>
<tr>
<td>OLAP (On-Line Analytical Processing) 405</td>
</tr>
<tr>
<td>OLAP platforms 403</td>
</tr>
<tr>
<td>OLAP server 405</td>
</tr>
<tr>
<td>One procedure code (PROC1) 34</td>
</tr>
<tr>
<td>one-to-one observation 15</td>
</tr>
<tr>
<td>oscillations 415, 418</td>
</tr>
<tr>
<td>osteomyelitis 15, 16, 21, 23, 27, 28, 30, 31, 34, 35, 36, 37, 38, 39,</td>
</tr>
<tr>
<td>41, 42, 43, 44</td>
</tr>
<tr>
<td>overweight 245</td>
</tr>
<tr>
<td>oxygen-rich blood 48</td>
</tr>
<tr>
<td>P</td>
</tr>
<tr>
<td>paclitaxel-eluting stent 51</td>
</tr>
<tr>
<td>paradoxical associations 227</td>
</tr>
<tr>
<td>parameter estimation 199</td>
</tr>
<tr>
<td>parameters 407, 408, 409, 410, 413, 414</td>
</tr>
<tr>
<td>patient basis 145</td>
</tr>
<tr>
<td>patient care 173</td>
</tr>
<tr>
<td>patient procedures 35</td>
</tr>
<tr>
<td>Penicillin 327</td>
</tr>
<tr>
<td>Percutaneous Transluminal Coronary Angioplasty (PTCA) 48</td>
</tr>
<tr>
<td>PET Scan 121</td>
</tr>
<tr>
<td>pharmaceutical companies 327, 365, 366</td>
</tr>
<tr>
<td>pharmacy data 36</td>
</tr>
<tr>
<td>physical therapy 145, 146, 151, 153, 154, 155, 156, 157, 158, 159,</td>
</tr>
<tr>
<td>161, 162, 163, 166, 167, 169, 170</td>
</tr>
<tr>
<td>physician decisions 15, 34</td>
</tr>
<tr>
<td>physiologic factors 79</td>
</tr>
<tr>
<td>pivotal quantity method 207</td>
</tr>
<tr>
<td>placebo 1</td>
</tr>
<tr>
<td>Pneumonia 24</td>
</tr>
<tr>
<td>polynomials 329, 333, 337</td>
</tr>
<tr>
<td>poor disease management 78</td>
</tr>
<tr>
<td>Positron-emission tomography 121</td>
</tr>
<tr>
<td>post-operative instructions 166, 170</td>
</tr>
<tr>
<td>prediction model 145</td>
</tr>
<tr>
<td>predictive model 6, 10, 245, 247, 254, 267</td>
</tr>
<tr>
<td>predictive modeling 1, 2, 6, 8, 101, 149, 161</td>
</tr>
<tr>
<td>preliminary model fitting 393</td>
</tr>
<tr>
<td>preprocessing cleaning 145</td>
</tr>
<tr>
<td>prescribing practices 327, 363</td>
</tr>
<tr>
<td>principal procedure (PPROC) 34</td>
</tr>
<tr>
<td>PROC FORMAT 26</td>
</tr>
<tr>
<td>proc kde procedure 103, 105</td>
</tr>
<tr>
<td>PROCTYP variable 35</td>
</tr>
<tr>
<td>prxparse code 166</td>
</tr>
<tr>
<td>psychological disorders 218, 219, 220, 222</td>
</tr>
<tr>
<td>psychological treatment 219, 223</td>
</tr>
<tr>
<td>pulmonectomy 122</td>
</tr>
<tr>
<td>Q</td>
</tr>
<tr>
<td>Quasi-Newton 284</td>
</tr>
<tr>
<td>qvar 79, 81, 83, 92</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>Radiation Therapy 101, 116</td>
</tr>
<tr>
<td>radical mastectomy 104, 105</td>
</tr>
<tr>
<td>radioactive pellets 123</td>
</tr>
<tr>
<td>radon 121</td>
</tr>
<tr>
<td>re-blocking 48, 49, 50, 52, 54, 65, 66, 67, 71, 73, 74, 75, 76</td>
</tr>
<tr>
<td>Regression analysis 134</td>
</tr>
<tr>
<td>regression line 91</td>
</tr>
<tr>
<td>renal failure 173, 174, 175, 176, 181, 182, 184, 185, 186, 190, 192,</td>
</tr>
<tr>
<td>194</td>
</tr>
<tr>
<td>respiratory disorder 406, 413</td>
</tr>
<tr>
<td>re-stenosis 50, 51, 52</td>
</tr>
<tr>
<td>Ridge regression 409</td>
</tr>
<tr>
<td>ROC curves 257, 258</td>
</tr>
<tr>
<td>ROC index 258</td>
</tr>
<tr>
<td>root mean square error (RMSE) 329, 330, 333, 339</td>
</tr>
<tr>
<td>RXMATCH 125, 134</td>
</tr>
<tr>
<td>RXMATCH function 125</td>
</tr>
<tr>
<td>S</td>
</tr>
<tr>
<td>SAS code 15, 176, 178, 182, 184, 186, 189, 190</td>
</tr>
</tbody>
</table>
SAS data file 80
SAS Enterprise Guide 221
SAS® Enterprise Miner™ 246
SAS software 55, 59, 71
SAS technology 218
SAS Text Miner 15, 23, 27, 28, 34, 150, 158, 160, 276
SAS text mining tools 279
Seasonality 7
secondhand smoke 121
sirolimus-eluting stent 51
small-cell lung carcinoma (SCLC) 118
socially fragile 308
socio-economic factors 305
socioeconomic status 212, 305, 307
software 146, 148, 149, 151, 153
sputum cytology 122
statistical analysis 3, 4
Statistical Analysis Software (SAS®) 151
statistical data modeling software 225
statistical methods 1, 2, 9, 11
statistical model 101
Statistical Philosophy 276
statistical tool 47
stents 47, 49, 50, 51, 52, 55, 56, 58, 59, 63, 64, 76, 77
step-by-step compression 2
Sterile Vancomycin Hydrochloride 18
submicroscopic sponge 226
suitable model 101
summary statistics 225, 226, 241, 242
surgical biopsy 122
Surgical pathology 139, 141
surgical resection 118
Surveillance, Epidemiology and End Results (SEER) 120
Surveillance, Epidemiology and End Results (SEER) program 120
Survival analysis 7, 10
survival data 8
systemic effects 118

T
teenage children 245
teenage obesity 245, 247
Tetracycline 327, 356, 357, 359
text analysis 1, 2, 9
Text Miner 15, 23, 24, 27, 28, 29, 31, 32, 34, 35, 37, 42, 151
text mining 4, 5, 145, 150, 151, 152, 158, 160, 161, 163, 166, 167, 169, 276, 294, 302
Thomson Medstat MarketScan® 100, 152
Thomson MedStat Market Scan data 100, 102
Thomson Medstat MarketScan database 145
time-dependent regressor 327
time series analysis 2
traditional approach 198, 200, 207, 216
transactional data 62, 63
Tree-shaped structures 403
Trend 7
triamcinolone 79
tumor 118, 121, 122, 123

U
ultrasonography 226
University of Louisville School of Dentistry (ULSD) 197

V
VAERS reporting system 263, 264, 266
Vancomycin 18, 19, 21, 22, 23, 25, 32, 37, 38, 39, 40, 44, 45
vector data model 309
ventriculooatrial (VA) 226
ventriculoperitoneal (VP) 226
viral infections 79, 327
viscoelastic matter 226

W
wavelet decomposition 411, 417
wavelets 405, 406, 411, 412, 416, 419
weight behavior 245
weight control option 250, 254
weight control plan 245, 247

X
X-ray 121
Index

Z

Zithromax 327
Zyvox 18, 21, 23, 24, 25, 28, 32, 37, 38, 39, 40, 42, 43, 45
Zyvox formulations 18