| Variable type                           | Variable name                          | CHF | AMI | COPD | PN | DB |
|----------------------------------------|----------------------------------------|-----|-----|------|----|----|
| Demographics                           | Age                                    | ×   | ×   | ×    | ×  | ×  |
|                                        | Gender                                 | ×   | ×   |      |    |    |
|                                        | Race                                   | ×   | ×   | ×    | ×  |    |
|                                        | Language                               | ×   | ×   | ×    |    |    |
|                                        | Marital status                         | ×   | ×   | ×    |    |    |
| Hospital and admission factors         | Number of previous admissions           | ×   | ×   | ×    | ×  | ×  |
|                                        | Admission type                         | ×   | ×   |      |    |    |
|                                        | Admission source                       | ×   | ×   | ×    | ×  |    |
|                                        | Severity Index                         | ×   | ×   | ×    | ×  |    |
|                                        | Number of PX                           | ×   | ×   | ×    | ×  |    |
|                                        | Weekend admission                      |      |    |      | ×  |    |
|                                        | Hospital location                      | ×   |     |      |    |    |
|                                        | Hospitalist                            | ×   | ×   | ×    | ×  |    |
| Socioeconomic                          | Insurance type                         | ×   | ×   |      |    |    |
| Comorbidities                          | Number of chronic diseases             | ×   | ×   | ×    | ×  | ×  |
|                                        | Infectious disease                     |     | ×   |      |    |    |
|                                        | Immunity disorder                      | ×   | ×   | ×    | ×  |    |
|                                        | Blood forming disease                  | ×   | ×   | ×    |    |    |
|                                        | Mental disorder                        | ×   |     |      |    |    |
|                                        | Nerve disease                          | ×   | ×   |      |    |    |
|                                        | Rheumatic heart disease                |     |     |      |    |    |
|                                        | Hypertension                           | ×   | ×   | ×    | ×  |    |
|                                        | Ischemic heart disease                 |     | ×   |      |    |    |
|                                        | Pulmonary disorder                     | ×   |     |      |    |    |
|                                        | Other heart diseases                   |     | ×   | ×    | ×  |    |
|                                        | Cerebrovascular disease                | ×   |     |      |    |    |
|                                        | Diseases of arteries                   | ×   | ×   |      |    |    |
|                                        | Circulatory disorder                   | ×   | ×   |     |    |    |
|                                        | Respiratory infections                 | ×   |     |      |    |    |
|                                        | Influenza                              | ×   | ×   |      |    |    |
|                                        | Chronic pulmonary disease              | ×   |     |      |    |    |
|                                        | Pneumoconiosis                         | ×   | ×   | ×    | ×  |    |
|                                        | Stomach disease                        | ×   |     |      |    |    |
|                                        | Gastroenteritis                        | ×   |     |      |    |    |
|                                        | Digestive system disorder              | ×   | ×   | ×    | ×  |    |
|                                        | Nephritis                              |     |     |      |    |    |
|                                        | Kidney disease                         | ×   | ×   |      |    |    |
|                                        | Diseases of productive organs          |     |     |      |    |    |
|                                        | Pregnancy complication                 | ×   |     |      |    |    |
|                                        | Skin disease                           | ×   | ×   |      |    |    |
|                                        | Spinal stenosis                        | ×   | ×   |      |    |    |
|                                        | Ill conditions                         | ×   | ×   |      |    |    |
| Variable type                  | Variable name                  | CHF | AMI | COPD | PN | DB |
|-------------------------------|--------------------------------|-----|-----|------|----|----|
| Abnormal symptoms             |                               | ×   | ×   | ×    | ×  | ×  |
| Surgical care complication    |                               | ×   | ×   |      |    |    |
| Artery disease                |                               | ×   | ×   | ×    | ×  |    |
| Heart failure                 |                               | ×   | ×   | ×    | ×  | ×  |
| Vascular disease              |                               |      |     |      |    | ×  |
| Liver disease                 |                               | ×   | ×   |      |    |    |
| Diabetics with organ damage   |                               | ×   |     |      |    |    |
| Renal failure                 |                               | ×   | ×   | ×    | ×  |    |
| External causes and patient history | Accident                     | ×   | ×   | ×    | ×  |    |
|                               | Misadventure during care      |     |     |      |    | ×  |
|                               | Drug adverse effects          | ×   | ×   | ×    | ×  | ×  |
|                               | Communicable disease history  | ×   | ×   | ×    | ×  |    |
|                               | Previous heart attack         | ×   |     |      |    | ×  |
|                               | Allergic to drug              |     |     |      |    | ×  |
|                               | Tobacco users                 | ×   | ×   | ×    |    |    |
|                               | Machine dependence            | ×   |     |      |    | ×  |
|                               | Heart surgery history         | ×   | ×   | ×    | ×  |    |
|                               | Current drug users            | ×   |     |      |    | ×  |
|                               | Homeless                      |     |     |      |    | ×  |
| AMI specific                  | Inferior wall AMI             |     |     |      |    | ×  |
|                               | Anterior wall AMI             |     |     |      |    | ×  |
|                               | Subendocardial infraction     |     |     |      |    | ×  |
| COPD specific                 | Exacerbation of COPD          |     |     |      |    | ×  |
|                               | Chronic condition with asthma |     |     |      |    | ×  |
|                               | Pleural effusion              |     |     |      |    | ×  |
| DB specific                   | Diabetes with neurological manifestations |     |     |      |    | ×  |

SVM: support vector machine, CHF: congestive heart failure, AMI: acute myocardial infarction, COPD: chronic obstructive pulmonary disease, PN: pneumonia, DB: type 2 diabetes.