

附录 A 用于风险评估建模的特征集合

附表 1 筛选后的特征集合

S.Tab 1 The selected features

序号	特征名称	序号	特征名称
1	Age (days)	12	大动脉转位 (Transposition of great arteries)
2	Gender	13	完全性大动脉转位 (Complete transposition of great arteries)
3	Weight (kg)	14	室间隔缺损 (Ventricular septal defect)
4	中度肺动脉高压 (Moderate pulmonary hypertension)	15	左向右分流 (Left to right shunt)
5	先天性心脏病 (Congenital heart disease)	16	房间隔缺损 (Atrial septal defect)
6	动脉导管未闭 (Patent ductus arteriosus)	17	法洛四联症 (Patent ductus arteriosus)
7	单心室 (Single ventricle)	18	肺动脉狭窄 (Pulmonary artery stenosis)
8	卵圆孔未闭 (Patent foramen ovale)	19	肺动脉瓣狭窄 (Pulmonary valve stenosis)
9	双向分流 (Bidirectional shunt)	20	肺动脉闭锁 (Pulmonary atresia)
10	右向左分流 (Right to left shunt)	21	轻度肺动脉高压 (Mild pulmonary hypertension)
11	右室双出口 (Double Outlet Right Ventricle)	22	重度肺动脉高压 (Severe pulmonary hypertension)

## 附录 B 风险等级预测的决策树模型\*

\*为了展示完整的决策分支，采用纯文本的决策树展示形式：每行代表一个判断或决策节点，行首用多个短竖线示意当前节点在树形结构中的深度。判断条件和分类结果以冒号分隔，并用绿色文字标出分类结果。括号内的红色数字用以指示当前分类节点的纯净度，两个数值分别为训练数据中被模型分入当前分类节点的样例数和其中分类有误的样例数。

大动脉转位 = 未提及

| 肺动脉闭锁 = 未提及

| | 右室双出口 = 未提及

| | | 双向分流 = 未提及

| | | | 右向左分流 = 未提及

| | | | | 室间隔缺损 = 未提及

						单心室 = 未提及
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```
| | | | | | | weight(kg) <= 12.5
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| | | | | | | | weight(kg) <= 2.25
```

		weight(kg) <= 1.8: 四级 (3 / 1)
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									weight(kg) > 1.8: 五级 (2 / 0)
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对应错误!

```
| | | | | | | | weight(kg) > 2.25
```

肺动脉瓣狭窄 = 未提及								

| | | | | | | | | 动脉导管未闭 = 未提及

[illegible]

```
| | | | | | | | | | weight(kg) <= 7.2
```

	weight(kg) <= 3.7: 二级 (6 / 0)
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```
| | | | | | | | | | | | | | weight(kg) > 3.7
```

```
| | | | | | | | | | | | | | | weight(kg) <= 5
```

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| | | | | | | | | | | | | | age(days) <= 66: 四级 (7 / 3)
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age(days) > 66: 五级 (2 / 0)

```
| | | | | | | | | | | | | | | | weight(kg) > 5
```

```
| | | | | | | | | | | | | age(days) <= 129: 二级 (11 / 3)
```

```
| | | | | | | | | | | | | | age(days) > 129: 五级 (6 / 4)
```

weight(kg) > 7.2

weight(kg) <= 7.7: 一级 (2 / 0)

weight(kg) > 7.7

age(days) <= 642: 二级 (15 / 2)

age(days) > 642: 一级 (3 / 2)

左向右分流 = 提及: 二级 (74 / 30)

动脉导管未闭 = 提及

房间隔缺损 = 未提及

左向右分流 = 未提及

age(days) <= 30: 二级 (3 / 0)

age(days) > 30

age(days) <= 106: 四级 (2 / 0)

age(days) > 106: 三级 (3 / 1)

左向右分流 = 提及

weight(kg) <= 3.95: 四级 (4 / 1)

weight(kg) > 3.95

weight(kg) <= 9.25: 二级 (3 / 0)

weight(kg) > 9.25: 四级 (3 / 1)

房间隔缺损 = 提及

左向右分流 = 未提及

age(days) <= 10: 二级 (2 / 0)

age(days) > 10: 五级 (3 / 1)

左向右分流 = 提及

age(days) <= 72: 二级 (4 / 2)

age(days) > 72: 一级 (3 / 2)

肺动脉瓣狭窄 = 提及

age(days) <= 466

房间隔缺损 = 未提及

age(days) <= 64: 四级 (4 / 0)

age(days) > 64: 二级 (5 / 1)

| | | | | | | | | | 房间隔缺损 = 提及: 二级 (2 / 1)

| | | | | | | | | | age(days) > 466: 三级 (3 / 0)

| | | | | | | weight(kg) > 12.5

| | | | | | | | age(days) <= 4753: 二级 (34 / 16)

| | | | | | | | age(days) > 4753: 四级 (3 / 1)

| | | | | | 单心室 = 提及: 五级 (6 / 1)

| | | | | 室间隔缺损 = 提及

| | | | | | 肺动脉狭窄 = 未提及

| | | | | | | 左向右分流 = 未提及

| | | | | | | | weight(kg) <= 5.8

| | | | | | | | | age(days) <= 72

| | | | | | | | | | age(days) <= 24

| | | | | | | | | | | age(days) <= 17

| | | | | | | | | | | 房间隔缺损 = 未提及: 三级 (5 / 1)

| | | | | | | | | | | 房间隔缺损 = 提及: 五级 (4 / 1)

| | | | | | | | | | | age(days) > 17: 二级 (3 / 1)

| | | | | | | | | | | age(days) > 24: 三级 (13 / 1)

| | | | | | | | | | | age(days) > 72: 五级 (4 / 0)

| | | | | | | | | weight(kg) > 5.8

| | | | | | | | | | age(days) <= 425

| | | | | | | | | | 房间隔缺损 = 未提及

| | | | | | | | | | | 动脉导管未闭 = 未提及

| | | | | | | | | | | | weight(kg) <= 8.9

| | | | | | | | | | | | | weight(kg) <= 8.2

| | | | | | | | | | | | | | age(days) <= 83: 三级 (3 / 1)

| | | | | | | | | | | | | | age(days) > 83

| | | | | | | | | | | | | | | weight(kg) <= 6.7: 一级 (2 / 1)

| | | | | | | | | | | | | | | weight(kg) > 6.7

| | | | | | | | | | | | | | | | weight(kg) <= 7.2: 二级 (2 / 0)

| | | | | | | | | | | | | | | | | weight(kg) > 7.2

| | | | | | | | | | | | | | | | age(days) <= 233: 二级 (4 / 2)

| | | | | | | | | | | | | | | | age(days) > 233: 四级 (3 / 1)

| | | | | | | | | | | | | | weight(kg) > 8.2: 一级 (3 / 1)

| | | | | | | | | | | | | | weight(kg) > 8.9

| | | | | | | | | | | | | | weight(kg) <= 9.1: 四级 (2 / 0)

| | | | | | | | | | | | | | weight(kg) > 9.1

| | | | | | | | | | | | | | weight(kg) <= 9.5: 三级 (2 / 0)

| | | | | | | | | | | | | | weight(kg) > 9.5

| | | | | | | | | | | | | | weight(kg) <= 10.5: 四级 (3 / 1)

| | | | | | | | | | | | | | weight(kg) > 10.5: 三级 (2 / 0)

| | | | | | | | | | | | | | 动脉导管未闭 = 提及: 四级 (3 / 2)

| | | | | | | | | | | | | | 房间隔缺损 = 提及

| | | | | | | | | | | | | | age(days) <= 90: 二级 (2 / 0)

| | | | | | | | | | | | | | age(days) > 90: 四级 (2 / 1)

| | | | | | | | | | | | | | age(days) > 425

| | | | | | | | | | | | | | weight(kg) <= 13.5: 三级 (7 / 1)

| | | | | | | | | | | | | | weight(kg) > 13.5

| | | | | | | | | | | | | | age(days) <= 1502: 一级 (3 / 1)

| | | | | | | | | | | | | | age(days) > 1502: 五级 (2 / 1)

| | | | | | | | | | | | | | 左向右分流 = 提及

| | | | | | | | | | | | | | weight(kg) <= 3.5

| | | | | | | | | | | | | | weight(kg) <= 2.95: 二级 (6 / 2)

| | | | | | | | | | | | | | weight(kg) > 2.95

| | | | | | | | | | | | | | weight(kg) <= 3.25: 四级 (5 / 1)

| | | | | | | | | | | | | | weight(kg) > 3.25

| | | | | | | | | | | | | | weight(kg) <= 3.45: 二级 (2 / 0)

| | | | | | | | | | | | | | weight(kg) > 3.45: 四级 (2 / 1)

| | | | | | | | | | | | | | weight(kg) > 3.5: 三级 (83 / 27)

| | | | | | | | | | | | | | 肺动脉狭窄 = 提及: 四级 (4 / 1)

| | | | 右向左分流 = 提及  
 | | | | | 肺动脉瓣狭窄 = 未提及  
 | | | | | | 动脉导管未闭 = 未提及  
 | | | | | | | 左向右分流 = 未提及  
 | | | | | | | weight(kg) <= 6.5: 五级 (5 / 1)  
 | | | | | | | weight(kg) > 6.5: 四级 (2 / 0)  
 | | | | | | | 左向右分流 = 提及: 四级 (4 / 0)  
 | | | | | | | 动脉导管未闭 = 提及: 五级 (9 / 1)  
 | | | | | 肺动脉瓣狭窄 = 提及  
 | | | | | | age(days) <= 50: 二级 (2 / 1)  
 | | | | | | age(days) > 50: 一级 (2 / 1)  
 | | | 双向分流 = 提及  
 | | | | 单心室 = 未提及: 四级 (87 / 32)  
 | | | | 单心室 = 提及: 五级 (2 / 0)

对应错误!

| | 右室双出口 = 提及  
 | | | 双向分流 = 未提及  
 | | | | age(days) <= 168  
 | | | | | 室间隔缺损 = 未提及  
 | | | | | | age(days) <= 84: 五级 (2 / 0)  
 | | | | | | age(days) > 84: 四级 (2 / 0)  
 | | | | | 室间隔缺损 = 提及: 四级 (3 / 0)  
 | | | | | age(days) > 168: 五级 (3 / 0)  
 | | | 双向分流 = 提及  
 | | | | 左向右分流 = 未提及  
 | | | | | age(days) <= 52: 四级 (2 / 0)  
 | | | | | age(days) > 52: 五级 (2 / 0)  
 | | | | 左向右分流 = 提及  
 | | | | | weight(kg) <= 5.8: 五级 (7 / 1)  
 | | | | | weight(kg) > 5.8: 四级 (2 / 0)

| 肺动脉闭锁 = 提及: 五级 (22 / 3)

大动脉转位 = 提及: 五级 (19 / 1)