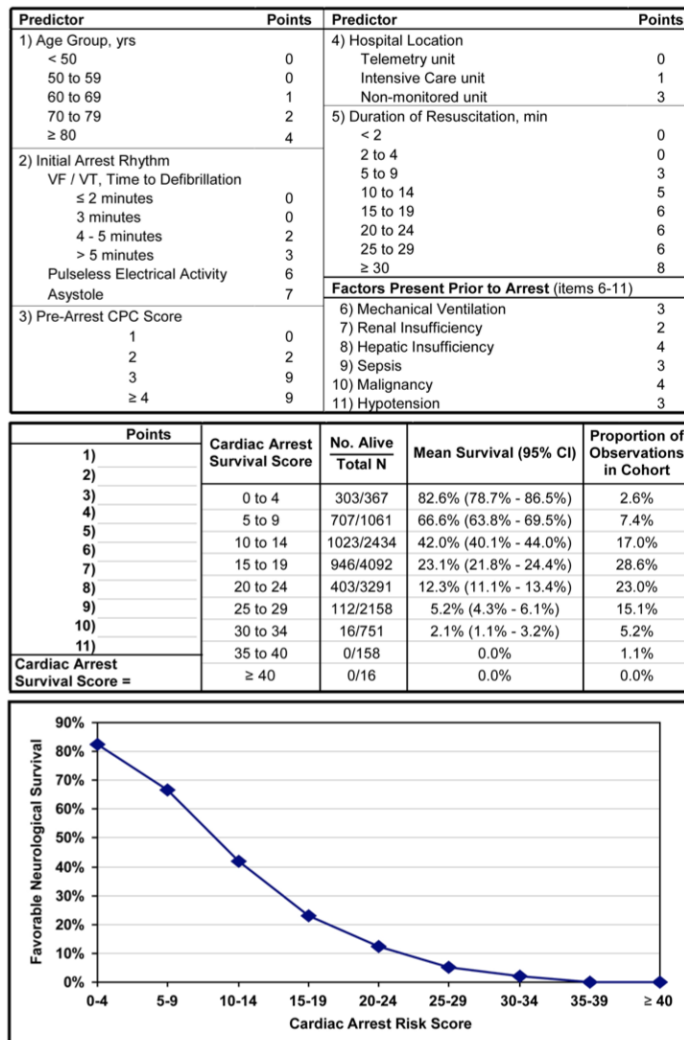# Prediction of Neurologic Outcome After Cardiac Arrest

The widespread use of therapeutic hypothermia for survivors of cardiac arrest has called into question many traditionally held assumptions about predicting which patients will recover neurologically. Although much of the recent literature available has focused on out-of-hospital V-fib arrest, there is an increasing role for cooling in patients who suffer a witnessed in-hospital arrest. (See the section entitled therapeutic hypothermia below for guidelines.) The following prediction algorithm was validated for in-hospital arrest, and is provided to guide decision making about selecting patients for therapeutic hypothermia and to facilitate discussion with families. The decision to initiate or forego therapeutic hypothermia should of course involve the attending intensivist and admitting surgeon.

Predictor	Points	Predictor	Points
1) Age Group, yrs		4) Hospital Location	
<50	0	Telemetry unit	0
50 to 59	0	Intensive Care unit	1
60 to 69	1	Non-monitored unit	3
70 to 79	2	5) Duration of Resuscitation, min	
≥ 80	4	< 2	0
		2 to 4	0
2) Initial Arrest Rhythm		5 to 9	3
VF / VT, Time to Defibrillation		10 to 14	5
≤ 2 minutes	0	15 to 19	6
3 minutes	0	20 to 24	6
4 - 5 minutes	2	25 to 29	6
> 5 minutes	3	≥ 30	8
Pulseless Electrical Activity	6	**Factors Present Prior to Arrest** (items 6-11)	
Asystole	7	6) Mechanical Ventilation	3
3) Pre-Arrest CPC Score		7) Renal Insufficiency	2
1	0	8) Hepatic Insufficiency	4
2	2	9) Sepsis	3
3	9	10) Malignancy	4
≥ 4	9	11) Hypotension	3

Points	Cardiac Arrest Survival Score	No. Alive / Total N	Mean Survival (95% CI)	Proportion of Observations in Cohort
1)				
2)				
3)	0 to 4	303/367	82.6% (78.7% - 86.5%)	2.6%
4)	5 to 9	707/1061	66.6% (63.8% - 69.5%)	7.4%
5)	10 to 14	1023/2434	42.0% (40.1% - 44.0%)	17.0%
6)	15 to 19	946/4092	23.1% (21.8% - 24.4%)	28.6%
7)	20 to 24	403/3291	12.3% (11.1% - 13.4%)	23.0%
8)	25 to 29	112/2158	5.2% (4.3% - 6.1%)	15.1%
9)	30 to 34	16/751	2.1% (1.1% - 3.2%)	5.2%
10)	35 to 40	0/158	0.0%	1.1%
11)	≥ 40	0/16	0.0%	0.0%
Cardiac Arrest Survival Score =				

Figure 2. The Cardiac Arrest Survival Post-Resuscitation In-hospital (CASPRI) Score Card and Nomogram for Favorable Neurological Survival
For this in-hospital cardiac arrest risk score, points for each variable are determined and a summary score is obtained. The corresponding likelihood of surviving to hospital discharge without severe neurological disability is determined from the risk table or plot.