

Summary of Cardiac Rhythms

Steps in Cardiac Rhythm Interpretation

1. Rhythm: regular or irregular; <i>if irregular</i> , irregularly irregular, regular except, or other ?	
2. Rate	
3. P waves a. Present or absent (or nondiscernable) b. Normal or abnormal c. 1:1 or > 1:1	6. QT interval: normal or abnormal
4. PR interval a. Normal or abnormal b. Constant or variable	7. ST segment: isoelectric, depressed, or elevated T wave inversion ?
5. QRS duration: normal or abnormal	

Intrinsic Heart Rates

CATEGORY	< 40 bpm	40-60 bpm	60-100 bpm	> 100 bpm
Sinus Node	Sinus Bradycardia (SB)		Normal Sinus Rhythm (NSR)	Sinus Tachycardia (ST)
Junctional Tissue (AV Node)		Junctional Rhythm (JR)	Accelerated Junctional Rhythm (AJR)	Junctional Tachycardia (JT)
Purkinje Fibers (Ventricle)	Idioventricular Rhythm (IVR)	Accelerated Idioventricular Rhythm (AIVR)		Ventricular Tachycardia (VT)

Comparison of dysrhythmias between classes or categories

CATEGORY	P WAVES	QRS
Sinus	Normal	Normal
Atrial	Absent ("fib" or "Flutter" waves)	Normal
Junctional	Abnormal (inverted) or Absent (or normal with short PRi)	Normal
Ventricular	Absent	Abnormal (wide)
Blocks	Too many P's for QRS's (generally)	(either normal or abnormal)

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SINUS	RHYTHM	RATE	P WAVES	PR	QRS	Rx
1. Normal Sinus Rhythm (NSR)	Regular (A & V)	60-99 (A & V)	Present, normal, 1:1	.12-.20 sec.	.04-.10 sec.	None
2. Sinus Bradycardia (SB)	Regular (A & V)	< 60 usually 40-60 (A & V)	Present, normal, 1:1	.12-.20 sec.	.04-.10 sec.	If symptoms – atropine, TCP
3. Sinus Tachycardia (ST)	Regular (A & V)	>99-160 (A & V)	Present, normal, 1:1	.12-.20 sec.	.04-.10 sec.	Treat cause (fever, pain, anxiety, hypoxia)
4. Sinus Arrhythmia	Cyclical (Irregular but patterned) (varies c respiration)	60-99 (A & V)	Present, normal, 1:1	.12-.20 sec.	.04-.10 sec.	None
Sinus Pause	(Seen in presence of another rhythm) Measure R-R interval to determine length (duration) of pause					None, unless symptoms
Premature Atrial Complex (PAC)	(Seen in the presence of another rhythm)	Come early	Present, normal or may look different, 1:1	< .12 sec. .12-.20 sec. > .20 sec.	.04-.10 sec. Nonconducted if not followed by QRS	None – Rx cause if need to eliminate; consider lifestyle changes

JUNCTIONAL	RHYTHM	RATE	P WAVES	PR	QRS	Rx
7. Junctional Rhythm (JR)	Regular (A & V)	40-60 (A & V)	Inverted (before or after QRS) or absent (hidden) or normal with short PRi	< .12 sec. if before QRS	.04-.10 sec.	If symptoms, try Atropine Otherwise, none
8. Accelerated Junctional Rhythm (AJR)	Regular (A & V)	61-99 (A & V)	Inverted (before or after QRS) or absent (hidden) or normal with short PRi	< .12 sec. if before QRS	.04-.10 sec.	None
9. Junctional Tachycardia (JT)	Regular (A & V)	> 99 (A & V)	Inverted (before or after QRS) or absent (hidden) or normal with short PRi	< .12 sec. if before QRS	.04-.10 sec.	If symptoms - ? drugs Consider cardioversion
Premature Junctional Complex (PJC)	(Seen in the presence of another rhythm)	Come early	Inverted (before or after QRS) or absent (hidden) or normal with short PRi	< .12 sec. if before QRS	.04-.10 sec.	None, unless symptoms
Junctional Escape Beat (JEB)	(Seen in the presence of another rhythm)	Come late (after pause)	Inverted (before or after QRS) or absent (hidden) or normal with short PRi	< .12 sec. if before QRS	.04-.10 sec.	None, unless symptoms

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ATRIAL	RHYTHM	RATE	P WAVES	PR	QRS	Rx
5. Atrial Flutter (AF)	Atrial regular Ventricular regular but can vary	Atrial 250-400 Ventricular normal, <100 ("controlled") or >100 ("uncontrolled")	Absent Flutter ("F") waves (sawtooth) (ratio 2:1, 3:1, 4:1, etc.)	None	.04-.10 sec.	Control rate & convert rhythm Cardioversion (< 48 hours) Consider anti-coagulation
6. Atrial Fibrillation (Afib)	Atrial chaotic, erratic Ventricular irregular ("Irregularly irregular")	Atrial > 400 Ventricular normal or slow ("controlled") or fast ("uncontrolled")	Absent fib ("f") waves	None	.04-.10 sec.	Control rate & convert rhythm Cardioversion (less 48 hours) Consider anti-coagulation

VENTRICULAR	RHYTHM	RATE	P WAVES	PR	QRS	Rx
11. Idioventricular Rhythm (IVR)	Regular (V only)	< 40	None	NA	> .10 sec.	Pacing (may try atropine) Back-up rhythm – do not eliminate
12. Accelerated Idioventricular Rhythm (AIVR)	Regular (V only)	40-99	None	NA	> .10 sec.	None (usually adequate CO)
13. Ventricular Tachycardia (VT)	Regular, usually (V only)	> 99-250	Not discernable	NA, unable to measure	> .10 sec.	Stable – consider drugs, cardioversion Pulseless – treat like VF [LETHAL]
14. Torsades de pointes	Somewhat irregular (spiral V rhythm)	> 99-250	Not discernable	NA, unable to measure	> .10 sec.	Magnesium; check cardiac drug levels Pulseless – treat like VF [LETHAL]
15. Ventricular Fibrillation (VF)	Chaotic, erratic (V only)	Unable to determine	None	NA	NA	Defibrillate once: 120 joules biphasic, 360 joules mono; then drugs (ACLS) [LETHAL]
16. Asystole	None	None	None	NA	NA	Check in another lead [LETHAL] CPR, pacing, drugs (vasop, epi, atropine)
17. Ventricular Standstill	Regular, usually (A only)	60-99 or < 60 (atrial only)	Present, normal, QRS absent	NA	NA	Check in another lead [LETHAL] CPR, pacing, drugs (atropine, vasopressin, epinephrine)
Premature Ventricular Complex (PVC)	(Seen in the presence of another rhythm)	Come early	None	NA	> .10 sec.	If symptoms – antiarrhythmic drug (amiodarone, lidocaine)
Ventricular Escape Beat (VEB)	(Seen in the presence of another rhythm)	Come late (after pause)	None	NA	> .10 sec.	Helper beats – do not eliminate If symptoms – treat slow rate (atropine)
Bundle Branch Block (BBB)	(Seen in the presence of another rhythm, must be supraventricular)				> .10 sec.	None If symptoms – treat underlying rhythm

SUPRAVENTRICULAR	RHYTHM	RATE	P WAVES	PR	QRS	Rx
10. Supraventricular Tachycardia (SVT)	Regular (V)	> 100, usually 150-250	Not discernable	none	.04-.10 sec.	Stable - vagal & ? adenosine Unstable – adenosine then cardioversion

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HEART BLOCKS	RHYTHM	RATE	P WAVES	PR	QRS	Rx
NSR, SB, ST, SA with First Degree	Regular (A & V, except SA)	Normal, slow, or fast	Present, normal, 1:1	> .20 sec. Constant	.04-.10 sec.	None
18. Second Degree, Type I (Mobitz I, Wenckebach)	Atrial regular Ventricular Irregular (grouped beatings)	60-99 or < 60	Present, normal, not 1:1, 1 more P than QRS (1 QRS "blocked")	Progressively lengthens (prolongs) until QRS blocked (Varies)	.04-.10 sec. or > .10 sec.	If symptoms – atropine, TCP
19. Second Degree, Type II (Mobitz II)	Atrial regular Ventricular Irregular (grouped beatings) OR Regular (ventric. complexes regularly blocked)	60-99 or < 60	Present, normal, not 1:1, more P's than QRS's (QRS's "blocked") (ratio 3:2, 4:3, etc.)	.12-.20 or > .20 sec. Constant when present (until blocked QRS's)	.04-.10 sec. or > .10 sec.	If symptoms – TCP, atropine (avoid atropine for wide QRS)
20. Third Degree (Complete)	Regular (A & V)	60-99 or < 60 (usually)	Present, normal, Not 1:1, complete A-V dissociation	Varies, not constant	.04-.10 sec. or > .10 sec.	If symptoms – TCP (atropine ONLY if QRS is normal)