EKG TECH BASICS · ONE-PAGER

Analyzing a Rhythm Strip Step by Step

A fixed order for every strip, regularity, narrow vs wide fast rhythms, early vs escape beats, describing what you cannot name, and what to report at once

26 sources + more detail

ekgtechbasics.com/sheets/ekg-rhythm-analysis-steps.html

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1 Patient and tracing first

Look at the patient, then check the tracing: right lead, 25 mm/s, standard gain, clean baseline. Read a 10-second lead II strip and confirm in other leads. For individual rhythms, see the Rhythm Gallery.

SAFETY A rhythm that does not fit the patient is a tracing problem until shown otherwise: a patient talking to you is not in VF. But an unresponsive patient who is not breathing normally needs help now: call for help or the code team, start CPR and use the AED if you are trained.

2 The steps, in order

STEP	ASK	NORMAL ADULT
1. Rate	Ventricular rate; atrial rate too if P waves and QRS complexes do not match	60–100/min
2. Regularity	Are the R-to-R intervals equal? Check with calipers or paper marks	Regular
3. P waves	Present? Upright in II? One shape? One before each QRS?	Upright, alike, one per QRS
4. PR interval	Start of P to start of QRS. Constant, lengthening or varying?	0.12–0.20 s (3–5 small boxes)
5. QRS	Start to end of the QRS. Narrow or wide?	Under 0.12 s (3 small boxes)
6. P to QRS	Every P followed by a QRS? Every QRS led by a P? Ratio?	1:1
7. QT	Start of QRS to end of T; less than half the R-to-R?	QTc under 440–470 ms (sources differ)
8. Extra findings	Early beats, late beats, pauses (in seconds), spikes, ST change	None
9. Name it	Origin, plus any block or ectopy	
10. How urgent?	Does it fit the patient? See the report table	

Rate at 25 mm/s (small box 0.04 s, large box 0.20 s): regular, 300 ÷ large boxes or 1,500 ÷ small boxes between R waves; irregular or slow, QRS complexes in 6 s × 10, or in 10 s × 6.

3 Regular or not

PATTERN	WHAT YOU SEE	EXAMPLES
Regular	Every R-to-R interval the same	Sinus rhythm, SVT, complete block (P waves and QRS each regular)
Regular with interruptions	A regular rhythm broken by an early beat or a pause	Occasional PACs or PVCs, a sinus pause
Regularly irregular	The irregularity repeats in a pattern; beats come in groups	Bigeminy, trigeminy, Wenckebach, sinus arrhythmia with breathing
Irregularly irregular	No pattern at all	AF, flutter with variable block, MAT

EXAM TIP Grouped beats: measure the PR of each beat in the group next. If the pulse felt irregular but the 10-second strip is regular, record a longer strip.



Regular: every R-to-R interval is the same.



Regularly irregular: a short and a long interval repeat in a fixed pattern (here every other beat is early).



Irregularly irregular: no two intervals predict the next.

4 Early or late: premature vs escape beats

	PREMATURE (ECTOPIC) BEAT	ESCAPE BEAT
Timing	Before the next expected beat	After a pause, later than the next beat was due
Why	An irritable spot fires early	The faster pacemaker slowed, stopped or was blocked; a backup took over
Examples	PAC, PJC (narrow); PVC (wide, no P before it)	Junctional, 40–60/min (narrow); ventricular, 20–40/min (wide)
Report	How often, pattern, couplets, runs	The pause or slow rate that came before it

EXAM TIP Exams test timing: early means premature, late means escape. An escape beat keeps the heart going; the problem is the pause before it.

5 Fast rhythms: narrow or wide, regular or not

RATE OVER 100	REGULAR	IRREGULAR
Narrow (under 0.12 s)	Sinus tachycardia, atrial tachycardia, SVT, flutter with a fixed ratio (for example 2:1)	AF, flutter with variable block, MAT
Wide (0.12 s or more)	VT until proved otherwise; SVT with a bundle branch block; paced; high potassium	AF with a bundle branch block or WPW; polymorphic VT (torsades)

SAFETY A regular wide-complex tachycardia is VT until proved otherwise. Being awake with a pulse does not rule out VT: tell the nurse at once and stay with the patient.

6 When you cannot name it, describe it

- Rate (ventricular, and atrial if different) and regularity, with the pattern.
- P waves: present or absent, shape, and how they relate to the QRS (ratio, or no fixed relation).
- PR, QRS and QT in seconds; narrow or wide.
- Extra beats (early or late, narrow or wide, how many, pattern) and pauses (length in seconds).
- Time, lead, how it started and stopped, and the patient's symptoms.

Example: 'Rate 38/min, regular, QRS 0.14 s; P waves regular at 80/min with no fixed relation to the QRS; patient dizzy.' A precise description gets the right response before anyone names the rhythm.

7 What to report, and how fast

Local protocol sets the thresholds and who calls the rapid response or code team.

FINDING	ACTION
VF, VT, asystole or a flat line in an unresponsive patient	Call for help or the code team; CPR and AED if trained
Any rhythm change with chest pain, shortness of breath, dizziness, fainting, sweating or confusion	Report at once; stay with the patient
VT or any wide tachycardia in an awake patient; runs of 3 or more PVCs	Report at once
Third-degree block, Mobitz II, 2:1 block, or a ventricular rate under 40	Report at once
Pause over 2 s (or your protocol's limit)	Report at once
New AF or flutter, SVT, ST elevation, QTc over 500 ms, pacer spikes without capture	Report now, per protocol
Occasional PACs or PVCs, sinus arrhythmia, stable first-degree block	Document; include in the routine report

EXAM TIP If the nurse cannot be reached, go up the chain (charge nurse) rather than wait. Document the finding, the time and the name of the person you told.

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