
EKG in Inpatient Psychiatry

Last updated October 2023.

(Related fact sheet: QT Interval Prolongation)

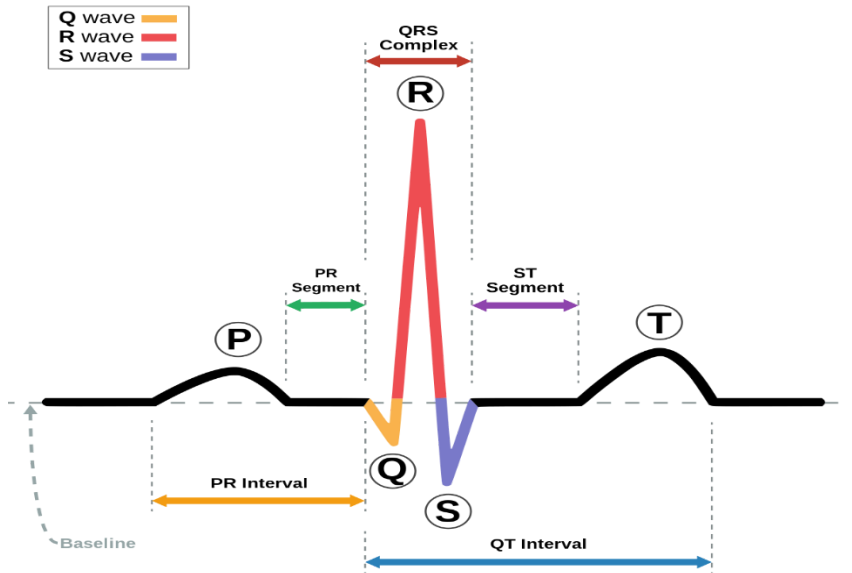
Introduction

This fact sheet aims to provide an evidence-based guide on when and why to order an EKG, medications that may necessitate an EKG, and basic EKG interpretation tips.

Indications for Ordering an EKG

- Routine screening for patients with preexisting cardiac issues. Most patients with a history of arrhythmias, coronary artery disease, or other cardiac disorders should have a routine EKG on admission to assess whether their psychiatric symptoms may be related to cardiac issues, and in preparation for possible prescriptions of meds that may affect cardiac function.
- Cardiac symptoms. Any patient with chest pain, palpitations, shortness of breath, dizziness, or other symptoms should get an EKG.
- Prior to starting certain medications, or prior to increasing the dose of certain medications. **Note that there is no requirement to check an EKG before starting any of these medications;** rather, there are various recommendations, depending on risks such as age, underlying diseases that might affect cardiac functioning, and presence of other medications that affect the heart.
 - Antipsychotics.
 - Clozapine: Sinus tachycardia, QT prolongation, myocarditis, cardiomyopathy.
 - Ziprasidone: QT prolongation
 - First generation antipsychotics: QT prolongation with IV Haldol, high dose chlorpromazine, thioridazine
 - Antidepressants.
 - Tricyclic antidepressants: QRS widening (also known as heart block), prolonged QT interval. EKG strongly recommended in people >40 yo.
 - Citalopram: Can cause prolonged QT interval at doses > 40 mg daily, however clinical significance of this is debatable.
 - Mood stabilizers
 - Lithium: Can cause T wave flattening or inversion. EKG recommended in patients with preexisting heart disease.
 - Lamotrigine: Can cause arrhythmias. EKG recommended if there is cardiac disease or if patient is Older than 60.
 - Methadone: QT prolongation
 - Stimulants: Can cause tachycardia, arrhythmia. EKG recommended only if there is a history of heart disease.

Basic EKG Interpretation Primer



- **P wave:** Atrial contraction
- **QRS complex:** Ventricular contraction
- **T wave:** Ventricular relaxation
- **PR interval:** Time from atrial to ventricular contraction
- **QT interval:** Total time of ventricular activity

Evaluate the rhythm

- Normal sinus rhythm: Regular P waves before each QRS complex
- Atrial Fibrillation: Irregular P waves

Look at the rate

- Normal: 60-100 bpm
- Tachycardia: >100 bpm
- Bradycardia: <60 bpm

Inspect the intervals

- QT interval varies by rate; use QTc to correct for rate (should be <450 ms for males, <470 ms for females)
- PR Interval: 0.12-0.20 seconds

Look for abnormal patterns

- ST Elevation: May indicate myocardial infarction
- T Wave flattening or inversion: May indicate ischemia