Case 1
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Sara is a 17-year-old patient who comes to the clinic today after struggling with a number of symptoms for 2 months. She reports sad and lonely feelings daily, an inability to leave her bed, poor appetite, and a 10 lb weight loss. She has not had suicidal tendencies.

Sara meets with the clinic’s psychiatrist for 1 hour who conducts a number of diagnostic tests and inquires more about her symptoms. The psychiatrist diagnoses Sara with major depressive disorder (or depression). The doctor recommends weekly behavioral therapy with the clinic’s psychologist and discussed medication options with Sara.
Case 1

• The prescriber is considering treating with:

  *Citalopram (Celexa)*

• Question 1: How does this drug work to treat this disease?
  Hint: *pharmacodynamics*; use [https://www.pharmgkb.org/annotatedDrugs](https://www.pharmgkb.org/annotatedDrugs)
Case 1

- Metabolism of citalopram:

  - Key pharmacogene for citalopram: CYP2C19
Case 1

• You recommend preemptive testing of Sara’s *CYP2C19* genotype before initiating therapy with citalopram. In the meantime, you have the genotypes of Sara’s parents in the electronic medical records.

<table>
<thead>
<tr>
<th></th>
<th>Dad</th>
<th>Mom</th>
</tr>
</thead>
<tbody>
<tr>
<td>genotype</td>
<td>*1/*2</td>
<td>*5/*13</td>
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Case 1

• Question 2: What genotypes and phenotypes are possible for Sara based on mom and dad’s genotype?

<table>
<thead>
<tr>
<th>Possible Genotypes (*X/*X)</th>
<th>Phenotype (Poor/Normal/Intermediate/Ultrarapid Metabolizer)</th>
<th>Drug Therapy Recommendation (Use/Don’t Use/Change Dose)</th>
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Use This Website To Look Up Genotype-Based Dosing: https://www.pharmgkb.org/chemical/PA449015/guidelineAnnotation/PA166127638
Case 1

• Sara underwent genotyping and you have received the results from the laboratory.

  CYP2C19: *2/*5

• Question 3: What is Sara’s phenotype?

• Question 4: What do you recommend for their treatment? Why (better or worse benefit/toxicity)?