**Client**  
HMSA: PQSR 2009

**Measure Title**  
COMPLETE BLOOD COUNT (CBC) MONITORING FOR PATIENTS ON CARBAMAZEPINE

<table>
<thead>
<tr>
<th>Disease State</th>
<th>Indicator Classification</th>
<th>Medication Monitoring</th>
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<tbody>
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<td>Liver function</td>
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**Strength of Recommendation**  
C

**Organizations Providing Recommendation**  
Food and Drug Administration Black Box Warning

**Clinical Intent**  
To ensure that eligible members on carbamazepine receive a blood count test in order to monitor therapy.

**Physician Specialties (suggested)**  
Refer to PQSR 2009 Clinical Measures by Specialty.

**Background**  
**Disease Burden**
- Carbamazepine is commonly used to treat seizure and mood disorders.[1, 2]
- Epilepsy and seizures affect 2.7 million Americans of all ages, at an estimated annual cost of $12.5 billion in direct and indirect costs. Approximately 200,000 new cases of seizures and epilepsy occur each year. [3, 4]

**Reason for Indicated Intervention or Treatment**
- Carbamazepine use can lead to hematological toxicity, such as rare aplastic anemia, persistent leukopenia, and isolated thrombocytopenia.[5-14] The collective incidence of thrombocytopenia, agranulocytosis and aplastic anemia in those using the drug is between 1 and 2 percent.[15]

**Evidence Supporting Intervention or Treatment**
- A review of 13 cases of fatal aplastic anemia developing in patients taking carbamazepine showed that the medication was the probable cause in only 3 patients.[16]
- Clinical trials have shown that approximately 10% of patients taking carbamazepine develop transient leukopenia, usually during the first month of treatment. This resolves despite continuation of the medication. [6, 10, 12]
- Case reports and clinical trials show that up to 8% of patients taking carbamazepine develop persistent leukopenia. This is usually evident during the first few weeks of therapy, and responds to discontinuation of the medication.[8, 11, 13]
A case report on four patients developing thrombocytopenia while taking carbamazepine found that all cases appeared 14 to 16 days after the medication was initiated, and all resolved within 7 days after discontinuation.[14]

Clinical Recommendations
- The FDA black box warning for Carbamazepine indicates that patients taking this medication have a risk that is 5-8 times greater than the general population for developing aplastic anemia and agranulocytosis. Therefore, they recommend performing baseline hematological studies.[17]

Source
Health Benchmarks, Inc

Denominator
| Denominator | Continuously enrolled members, who had at least a 180 day supply of carbamazepine during the year prior to the measurement year.

Denominator Exclusion
| Denominator | N/A
| Exclusion | N/A

Numerator
| Numerator | Members who have had appropriate monitoring lab work (i.e. general health panel or CBC) completed during the 0-365 days after the index date.

Physician Attribution
| Physician Attribution | Score the physician (in the selected specialties) who prescribed index date prescription.

References

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