A review of Medicare enrollment and service files by the Office of Biostatistics and Epidemiology (OBE) found that some elderly individuals might be suffering from a malaria-like disease called babesiosis. This finding suggests that large administrative databases can be useful in assessing emerging infections in the U.S.

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Babesiosis is an Emerging Infection in the United States

- Caused by infection of red blood cells by the protozoan parasites of Babesia species, which is closely related to the parasites that cause malaria.
- Produces symptoms that are generally mild and flu-like (fever, chills, and aches) but could be severe (severe anemia, multi-organ failure and death).
- Transmitted mostly through bites of the young nymph stage of the Ixodes scapularis tick (deer tick) in areas with woods, brush, or grass, but also through transfusion of blood from Babesia-infected donors.
- Disease occurs mostly in people without a spleen or those with immune system dysfunction, neonates, and elderly individuals.
FDA Study Done to Address Threat to Elderly Persons

Elderly persons are one of the most vulnerable at-risk populations for developing disease after infection with the Babesia parasite. However, there are no published nationwide studies on babesiosis occurrence in that group. To fill this gap in knowledge, OBE used Centers for Medicare & Medicaid Services administrative databases to assess babesiosis occurrence among elderly Medicare beneficiaries in the United States during 2006–2008.

FDA Study Used Medicare Databases from Medical Facilities

- Collected data on recorded babesiosis occurrence among the elderly (65 years of age and older) from Medicare enrollment files and databases from various medical facilities (e.g., hospitals, physician offices, skilled nursing homes).
- Estimated the number of cases of babesiosis per each 100,000 Medicare beneficiaries each year from 2006 through 2008.

Major Findings of Babesiosis Study

Babesiosis Cases and rates among Elderly Medicare Beneficiaries, 2006-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Cases</th>
<th>Total Rates*</th>
<th>Rates for Whites*</th>
<th>Rates for non-Whites*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>985</td>
<td>3.6</td>
<td>4.0</td>
<td>0.6</td>
</tr>
<tr>
<td>2007</td>
<td>851</td>
<td>3.2</td>
<td>3.6</td>
<td>0.9</td>
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<td>2008</td>
<td>1,223</td>
<td>4.7</td>
<td>5.2</td>
<td>1.4</td>
</tr>
</tbody>
</table>

*Number of Babesiosis cases diagnosed per 100,000 elderly Medicare beneficiaries
Note: Higher rate among whites might reflect higher white suburban population.
Our study found more Babesiosis cases in 2008 compared with previous two years among the U.S. elderly. The number of diagnosed babesiosis cases (black bars) and rates (red line) among elderly Medicare beneficiaries in the United States (2006–2008) was highest during the summer, with 41% of all cases being diagnosed during July and August, which coincides with the transmission season of the Babesia parasite and the life cycle of the tick that carries it.

Gender Differences

- Annual rates significantly higher for men than for women.
- Annual rates significantly higher for women aged 65-84 versus women 85 years and older.

Geographic Differences

- Connecticut, Rhode Island, New York, and Massachusetts had the highest babesiosis rates among the elderly;
- Babesiosis cases among the elderly were also recorded in other states, including California, Florida, Texas, Pennsylvania, Minnesota, and Wisconsin.
Babesiosis Occurrence among Medicare Beneficiaries during 2006-2011

These counts represent the number of Medicare beneficiaries with Babesiosis in each county based upon the first recorded diagnosis.
Efforts to Protect the Blood Supply

• There are currently no FDA-approved laboratory tests to detect Babesia infections in blood donors. However, workers at blood collection centers can use a current donor history questionnaire that specifically asks prospective donors if they have ever had babesiosis.

• CBER scientists are now working to develop two types of laboratory test that can differentiate between potential donors who are currently infected from those who were previously exposed to this parasite but are not currently infected.

• CBER held a workshop on September 12, 2008 to discuss transfusion-transmitted babesiosis with experts. In addition, CBER sought advice on blood donor testing and screening strategies from its Blood Products Advisory Committee on July 26-27, 2010.

The large nationwide medical databases used for this study are additional tools to better understand regional, seasonal, and other babesiosis transmission patterns, by year and demographic characteristics, among the US elderly.

Because the elderly are also known to use the majority of transfused blood, studies are needed to evaluate transfusion-transmitted babesiosis in this group.