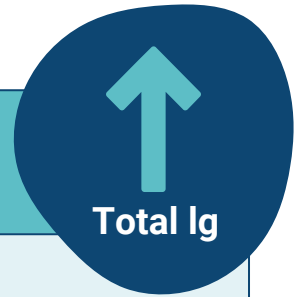


# Causes of Low or High Total Immunoglobulins

**Table 1. Causes of secondary or acquired hypogammaglobulinemia**

<b>Conditions that cause an abnormal loss or increased catabolism of immunoglobulins</b>	<ul style="list-style-type: none"> <li>• Nephrotic syndrome and other severe renal diseases</li> <li>• Severe burns</li> <li>• Sepsis</li> <li>• Protein-losing enteropathy</li> <li>• Intestinal lymphangiectasia</li> </ul>
<b>Conditions &amp; factors affecting immunoglobulin production</b>	<ul style="list-style-type: none"> <li>• Nutritional due to malnutrition or alcoholism</li> <li>• Drugs such as phenytoin, carbamazepine, immunosuppressive drugs or chemotherapy agents</li> <li>• Malignancies, especially hematological malignancies (chronic lymphocytic leukemia, lymphoma, multiple myeloma)</li> <li>• Rheumatological disease, including rheumatoid arthritis or systemic lupus erythematosus</li> <li>• Viruses including HIV, Epstein-Barr virus, rubella and cytomegalovirus</li> </ul>



**Table 2. Causes of increased immunoglobulin levels**

Immunoglobulin Result	Associated Conditions
<b>Polyclonal increase in any or all of the three classes (IgG, IgA and/or IgM)</b>	<ul style="list-style-type: none"> <li>• Infections, acute and chronic (including HIV, Epstein-Barr virus, cytomegalovirus)</li> <li>• Connective tissue diseases (rheumatoid arthritis, systemic lupus erythematosus, scleroderma)</li> <li>• Chronic active autoimmune hepatitis (IgG)</li> <li>• Primary biliary cirrhosis (IgM)</li> <li>• Hematologic disorders</li> <li>• Non-hematologic malignancies</li> <li>• In cord blood of newborns with intrauterine infection (IgM to offending pathogen)</li> </ul>
<b>Monoclonal increase in one class with or without decrease in other two classes</b>	<ul style="list-style-type: none"> <li>• Multiple myeloma (IgG, IgA, rarely IgM)</li> <li>• Monoclonal gammopathy of uncertain significance</li> <li>• Chronic lymphocytic leukemia</li> <li>• Non-Hodgkin lymphoma</li> <li>• Waldenstrom macroglobulinemia (IgM)</li> <li>• Primary systemic amyloidosis</li> <li>• Monoclonal cryoglobulinemia</li> </ul>