

10 Warning Signs of WHIM Syndrome

People with WHIM syndrome do not all present with Warts, Hypogammaglobulinemia, Infections, and Myelokathexis^a. The broad spectrum and heterogeneity of clinical presentation can delay diagnosis by decades for patients with this rare disease. Diagnosis can be confirmed with genetic testing of the *CXCR4* gene. If you or someone you know is affected by 2 or more of the warning signs listed below, speak to a physician about the possibility of WHIM syndrome.

1 NEUTROPENIA
(may return to normal during infections)

2 LOW ANTIBODY
levels in blood (e.g., IgG <600 mg/dL in people >16 years of age, and based on normal ranges for age in people ≤ 16 years old)

3 RECURRENT WARTS UNRESPONSIVE TO TREATMENT
(e.g., skin, anogenital)

4 RECURRING RESPIRATORY TRACT INFECTIONS
(2 or more pneumonias within 1 year)

5 FREQUENT EAR INFECTIONS
(4 or more new ear infections within 1 year; may result in hearing loss)

6 FAMILY HISTORY
(e.g., neutropenia, recurrent infections, warts)

7 UNEXPLAINED LYMPHOPENIA
identified via newborn screening (but not due to severe combined immunodeficiency)

8 CANCERS ASSOCIATED WITH HPV
(e.g., cervical, head, and neck)

9 BRONCHIECTASIS
(leading to chronic lung inflammation)

10 SKIN INFECTIONS
(e.g., cellulitis, impetigo, folliculitis, abscess)

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For information about WHIM syndrome, contact X4 Pharmaceuticals at medical.affairs@x4pharma.com.
For referrals, contact the Jeffrey Modell Foundation at info4pi.org.

^aMyelokathexis, retention of leukocytes in the bone marrow
CXCR4, C-X-C chemokine receptor 4; **HPV**, human papillomavirus; **IgG**, immunoglobulin G.