

GAUCHER

Not an actual patient.

GAUCHER DISEASE TYPE 1

Identification and differential diagnosis

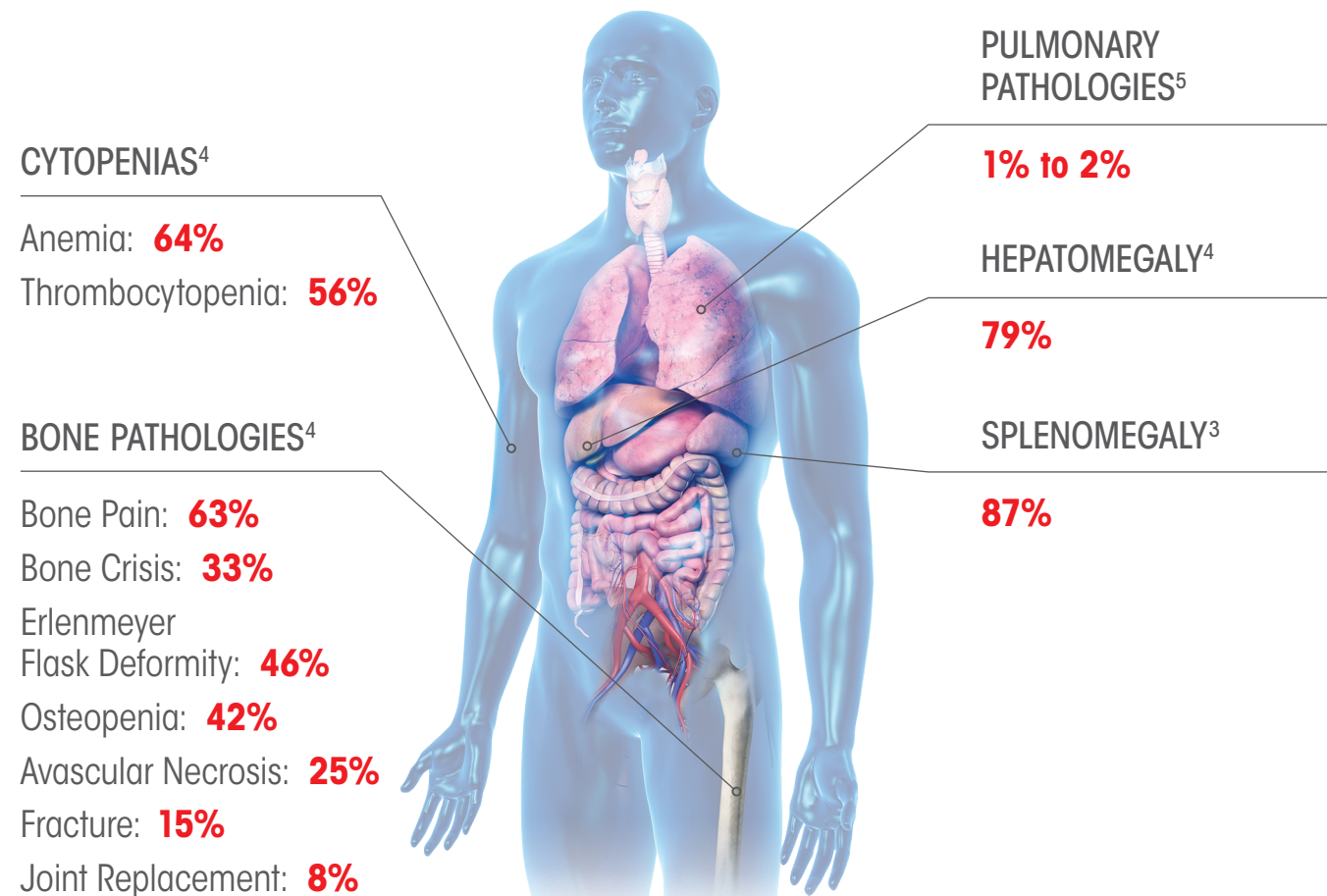
Gaucher disease type 1: A rare, progressive disease that can go undiagnosed for up to 10 years¹

Gaucher disease is caused by the accumulation of glucocerebroside (GL-1) in cells of monocyte/macrophage lineage.^{1,2}

- Gaucher disease type 1 is pan-ethnic, with a frequency of $\approx 1:40,000$ in the general population. However, in patients of Ashkenazi Jewish ancestry, the frequency is $\approx 1:850$ ³

➤ GL-1 buildup can lead to progressive multiorgan dysfunction with lifelong consequences.¹

SYMPTOM PREVALENCE IN PATIENTS WITH GAUCHER DISEASE TYPE 1



➤ Gaucher disease can also lead to a **reduced quality of life**, a **shortened lifespan**, and an **increased risk of cancer**.^{1,3}

Include Gaucher disease in your differential diagnosis

GAUCHER DISEASE COMMONLY MIMICS THE SIGNS AND SYMPTOMS OF MANY HEMATOLOGICAL MALIGNANCIES^{3,6-23}

	Gaucher disease type 1	ASMD* Type B	Acute lymphoblastic leukemia	Multiple myeloma	Non-Hodgkin lymphoma	Chronic myeloid leukemia	Hairy cell leukemia	Myelofibrosis
AGE OF ONSET (YEARS)	0-80	Infancy to adulthood	Usually children under 5/ adults >60	Usually 65-70	Usually ≈ 70	Usually ≈ 50	Usually ≈ 50	Usually >50
SPLENOMEGALY	●	●	●	Less common	●	●	●	●
HEPATOMEGALY	●	●	●	Less common	●	●	●	●
BRUISING/ BLEEDING	●	●	●	●	●	●	●	●
FATIGUE	●	●	●	●	●	●	●	●
BONE PAIN	●	●	●	●	●	●	●	●
GROWTH DELAY	●	●	N/A	N/A	No	N/A	N/A	N/A
GAUCHER CELLS ON BIOPSY	Occur in clusters	N/A	Sometimes pseudo-Gaucher cells	Sometimes pseudo-Gaucher cells	Sometimes pseudo-Gaucher cells	Sometimes pseudo-Gaucher cells	N/A	Sometimes pseudo-Gaucher cells

*Acid sphingomyelinase deficiency (ASMD), historically known as Neimann-Pick disease types A, B, and A/B.

Not all the signs and symptoms or potential differential diagnoses for Gaucher disease are included in this chart. Physicians should determine the appropriate differentials according to each patient's condition.

➤ If a patient presents with these symptoms, **consider testing for Gaucher disease**.

Testing is simple

TEST TO KNOW. IT COULD BE GAUCHER DISEASE TYPE 1.

Blood-based enzyme assay (acid beta-glucosidase) is the gold standard for definitive diagnosis of Gaucher disease type 1. Treatment options are available, including oral therapies.^{3,4,6}

➤ Learn more at GaucherCare.com/hcp

MAKE A DIAGNOSIS, MAKE A DIFFERENCE

Test for Gaucher disease

The β -glucosidase enzyme assay is the gold standard for confirming a diagnosis of Gaucher disease.^{3,4}

Gaucher disease type 1 is manageable, and treatment options are available, including oral therapies.^{3,6}

Not an actual patient.

**> Learn more about diagnosing and testing for Gaucher disease at
GaucherCare.com/hcp**

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References: 1. Mistry PK, Sadan S, Yang R, Yee J, Yang M. Consequences of diagnostic delays in type 1 Gaucher disease: the need for greater awareness among hematologists-oncologists and an opportunity for early diagnosis and intervention. *Am J Hematol.* 2007;82(8):697-701. doi:10.1002/ajh.20908 2. Pastores GM, Hughes DA. Gaucher disease. In: Adam MP, Ardinger HH, Pagon RA, et al, eds. *GeneReviews*®. University of Washington, Seattle. Published July 27, 2000. Updated June 21, 2018. Accessed January 28, 2022. <https://www.ncbi.nlm.nih.gov/books/NBK1269/> 3. Mistry PK, Cappellini MD, Lukina E, et al. A reappraisal of Gaucher disease—diagnosis and disease management algorithms. *Am J Hematol.* 2011;86(1):110-115. doi:10.1002/ajh.21888 4. Charrow J, Andersson HC, Kaplan P, et al. The Gaucher Registry: demographics and disease characteristics of 1698 patients with Gaucher disease. *Arch Intern Med.* 2000;160(18):2835-2843. 5. Pastores GM, Weinreb NJ, Aerts H, et al. Therapeutic goals in the treatment of Gaucher disease. *Semin Hematol.* 2004;41(4)(suppl 5):4-14. doi:10.1053/j.seminhematol.2004.07.009 6. Grabowski GA, Petsko GA, Kolodny EH. Gaucher disease. In: Valle D, Beaudet AL, Vogelstein B, eds. *The Online Metabolic and Molecular Bases of Inherited Disease*. McGraw Hill; 2014: chap 146. Accessed January 31, 2022. <https://ommbid.mhmedical.com/content.aspx?bookid=2709§ionid=225546056> 7. Hoffman R, Benz EJ Jr, Silberstein LE, Heslop HE, Weitz JI, Anastasi J. *Hematology: Basic Principles and Practice*. 6th ed. Elsevier Saunders; 2013. 8. O'Donnell MR. Acute leukemias. Cancer Network. Published June 1, 2016. Accessed January 31, 2022. <https://www.cancernetwork.com/view/acute-leukemias> 9. Sawyers CL. Chronic myeloid leukemia. *N Engl J Med.* 1999;340(17):1330-1340. doi:10.1056/NEJM199904293401706 10. Savage DG, Szydlo RM, Goldman JM. Clinical features at diagnosis in 430 patients with chronic myeloid leukaemia seen at a referral centre over a 16-year period. *Br J Haematology.* 1997;96(1):111-116. doi:10.1046/j.1365-2141.1997.d01-1982.x 11. Faderl S, Talpaz M, Estrov Z, et al. The biology of chronic myeloid leukemia. *N Engl J Med.* 1999;341(3):164-172. doi:10.1056/NEJM199907153410306 12. Thiele J, Kvasnicka HM, Schmitt-Graeff A, et al. Effects of the tyrosine kinase inhibitor imatinib mesylate (STI571) on bone marrow features in patients with chronic myelogenous leukemia. *Histol Histopathol.* 2004;19(4):1277-1288. doi:10.14670/HH-19.1277 13. Hairy cell leukemia facts (FS16). Leukemia & Lymphoma Society. Accessed December 4, 2017. https://www.lls.org/sites/default/files/file_assets/hairycellleukemia.pdf 14. Hairy cell leukemia treatment (PDQ®)—health professional edition. National Cancer Institute. Updated January 12, 2022. Accessed January 31, 2022. <https://www.cancer.gov/types/leukemia/hp/hairy-cell-treatment-pdq> 15. Adult non-Hodgkin lymphoma treatment (PDQ®). National Cancer Institute. Updated July 12, 2017. Accessed January 31, 2022. <http://cancer.gov/cancertopics/pdq/treatment/adult-non-hodgkins/Patient> 16. Shankland KR, Armitage JO, Hancock BW. Non-Hodgkin lymphoma. *Lancet.* 2012;380(9844):848-857. doi:10.1016/S0140-6736(12)60605-9 17. Myelofibrosis facts (FS14). Leukemia & Lymphoma Society. Accessed January 31, 2022. http://www.lls.org/sites/default/files/file_assets/FS14_Myelofibrosis_Fact%20Sheet_Final9.12.pdf 18. Tefferi A. Primary myelofibrosis: 2013 update on diagnosis, risk-stratification, and management. *Am J Hematol.* 2013;88(2):141-150. doi:10.1002/ajh.23384 19. Al-Farsi K. Multiple myeloma: an update. *Oman Med J.* 2013;28(1):3-11. doi:10.5001/omj.2013.02 20. Shah D. Multiple myeloma clinical presentation. Medscape. Updated May 11, 2021. Accessed January 31, 2022. <http://emedicine.medscape.com/article/204369-clinical> 21. Kaplan P, Baris H, de Meirleir L, et al. Revised recommendations for the management of Gaucher disease in children. *Eur J Pediatr.* 2013;172(4):447-458. doi:10.1007/s00431-012-1771-z 22. McGovern MM, Dionisi-Vici C, Giugliani R, et al. Consensus recommendation for a diagnostic guideline for acid sphingomyelinase deficiency. *Genet Med.* 2017;19(9):967-974. doi:10.1038/gim.2017 23. Cox GF, Clarke LA, Giugliani R, et al. Burden of illness in acid sphingomyelinase deficiency: a retrospective chart review of 100 patients. *JIMD Rep.* 2018;41:119-129. doi:10.1007/8904_2018_120

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MAT-US-2015878_v2.0_05/22