



MRD TESTING FREQUENTLY ASKED QUESTIONS

THE FACTS ABOUT MINIMAL RESIDUAL DISEASE (MRD) TESTING

These frequently asked questions (FAQs) are intended to help newly diagnosed blood cancer patients and their families better understand MRD, related terminology, and testing for MRD. This information can help you feel well-informed when discussing treatment plans with your doctor.

FAQ

1. What is minimal residual disease (MRD)? What do MRD tests measure?

- Minimal or measurable residual disease, or MRD, is the name for the small amount of cancer cells in a patient's body after treatment. The number of these cells can be so small that they are sometimes referred to as "undetectable disease." MRD is only found using highly specialized blood tests.

2. Is there more than one type of test to measure MRD? How are the tests performed?

- Yes, there are a number of tests to detect and measure MRD. The tests you receive will depend on your type of cancer and the treatment plan developed by you and your doctor.
- MRD testing uses highly sensitive lab tests. The most widely used tests are polymerase chain reaction (PCR), which detects and measures specific genes; flow cytometry, which detects changes in antigens and surface proteins on cells; and next-generation sequencing, which examines stretches of DNA or RNA for mutations and other genetic abnormalities.
- The tests use samples of blood (taken from a vein) or bone marrow cells (taken from a bone marrow biopsy).

3. How sensitive are MRD tests?

- Tests that measure MRD are extremely sensitive. For instance, they can find one cancer cell out of 10,000 to 1 million healthy cells.¹

4. What does MRD positive and MRD negative mean?

- Your doctor or specialist may use the terms "MRD positive" or "MRD negative" when discussing test results.
- MRD positive, or detectable, means an individual has residual cancer cells in the body after treatment, currently measured at 1 cancer cell in 10,000 healthy cells.²
- MRD negative, or undetectable, means an individual has no detectable disease by the tests that measure minimal residual disease.²

1.

2. Leukaemia CARE. Advocacy toolkit: Minimal Residual Disease (2018). Retrieved from <https://www.leukaemiacare.org.uk/wp-content/uploads/2018/02/MRD.pdf>



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5. Does my cancer require MRD Testing?

- MRD tests are used to develop and guide treatment plans for leukemia, myeloma, and lymphoma. The tests vary based on the type of blood cancer.
- Leukemia: Leukemia is a cancer that affects the blood and bone marrow. In many parts of the world, MRD testing has become a routine part of care for some forms of leukemia. Studies show that in some cases MRD is the best way to monitor how well initial treatments are working. In addition, patients who reach MRD negative status early can avoid more intense treatments.³
- Myeloma: Myeloma is a cancer of plasma cells (a type of white blood cell). Research indicates that MRD testing is an important marker in learning how patients respond to treatment and their potential for long-term survival.²
- Lymphoma: Lymphoma is a cancer that starts in lymphocytes (a type of white blood cell) in the lymphatic system. There is promising research that next generation MRD tests can help identify patients who are at higher risk of relapse. MRD tests may help guide these patients toward more intensive, earlier treatment.⁴
- There is promising research that MRD testing could be effective in developing and monitoring treatment plans for other blood cancers, such as myelodysplastic syndromes (MDS) and myeloproliferative neoplasms (MPN).

6. How does knowing MRD levels affect a person's treatment plan, or chance of cancer recurrence?

- There is a growing acceptance that MRD testing is a valuable tool that allows your doctor to tailor your treatment plan. With some, but not all types of therapies, patients who have undetectable MRD may be able to safely stop their treatment. In some cases when detectable MRD is found, therapy may need to be continued or changed.
- Testing for MRD after initial treatments can help show whether early treatments are working well, or if other treatments should be considered. After treatment, an MRD test can indicate whether a patient is at higher risk of relapse.⁵

7. How often should a patient be tested for MRD?

- MRD testing is highly dependent on the type of cancer and a patient's individual treatment plan. Patients may be tested after the final cycle of combination therapy, after bone marrow transplantation, during treatment to confirm the depth of remission, after one year on maintenance therapy, at regular intervals after treatment is completed, or at other specific times as recommended by the doctor.

8. Should individuals in remission from a blood cancer be tested for MRD?

- If you are being treated for cancer, speak with your doctor about how frequently you should be tested for MRD.

9. What else is important for me to know about MRD testing and my type of cancer?

- Learning more about your type of cancer and treatment options will help you and your family make informed choices. To prepare for visits with your doctor or blood cancer specialist, there are sample **Questions to Ask Your Doctor**, which you can print and bring to the appointment to help guide your discussion.

3. Berry DA, Zhou S, Higley H, et al. Association of minimal residual disease with clinical outcome in pediatric and adult acute lymphoblastic leukemia: A meta-analysis. *JAMA Oncol.* 2017 Jul 13;3(7):e170580. doi:10.1001/jamaoncol.2017.0580

4. Herrera AF, Armand P. Minimal residual disease assessment in lymphoma: Methods and applications. *J Clin Oncol.* 2017 Dec 1;35(34):3877-3887. doi:10.1200/JCO.2017.74.5281

5. Munshi NC, Avet-Loiseau H, Rawstron AC, et al. Association of minimal residual disease with superior survival outcomes in patients with multiple myeloma: A meta-analysis. *JAMA Oncol.* 2017 Jan 1;3(1):28-35. doi:10.1001/jamaoncol.2016.3160