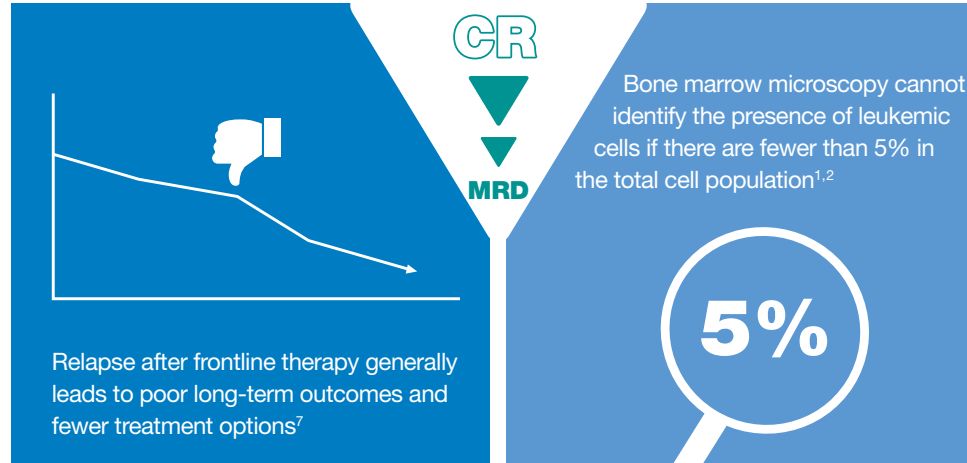
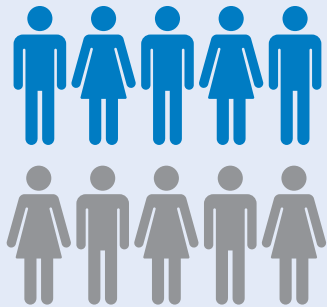


Get deeper and test for minimal residual disease (MRD)

MRD IS ASSOCIATED WITH RELAPSE AND POORER SURVIVAL IN PATIENTS WITH ALL.⁴

Up to 50% of adult patients with ALL who achieve CR after chemotherapy may relapse^{5,6}



Over a 10 year period, patients who achieved MRD negativity had a greater chance of survival vs patients who remained MRD(+)^{4,*}



*According to a meta-analysis of 5 studies evaluating 806 adult patients with ALL.

Sensitivity of cancer cell detection in 3 testing methods

FLOW CYTOMETRY

1 in 10,000 normal cells⁵

POLYMERASE CHAIN REACTION

1 in 100,000 normal cells⁸

NEXT-GENERATION SEQUENCING

1 in 1,000,000 normal cells⁹

NCCN Clinical Practice Guidelines In Oncology (NCCN Guidelines[®]) for ALL recommend MRD testing at diagnosis, upon completion of initial induction therapy, and continued monitoring every 3–6 months for at least 5 years as clinically indicated.^{3,†}

[†]While there is insufficient evidence to guide MRD monitoring for Ph-negative patients following completion of maintenance therapy, the approval of blinatumomab, and potentially future therapies for the MRD-positive⁵ relapse, may warrant testing in this regard. Alternatively, for patients showing evidence of symptomatic relapse, the diagnostic workup should be repeated as per ALL-1 in the NCCN Guidelines[®] for ALL.



“MRD is an essential component of patient evaluation over the course of sequential therapy.”³

To learn more about MRD visit www.amgenoncology.com



To find an MRD testing facility see reverse side.

In both children and adults with ALL, MRD testing as early as induction therapy has been shown to have prognostic significance³

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3. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines[®]) for Acute Lymphoblastic Leukemia V.2.2019. ©National Comprehensive Cancer Network, Inc. 2019. All rights reserved. Accessed November 1, 2019. To view the most recent and complete version of the guideline, go online to NCCN.org. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way.
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Facilities Conducting MRD Testing

The following is a list of facilities that are CLIA-certified and accept external MRD samples. CLIA certification was validated using the CDC website,* and acceptance of external samples was confirmed by reviewing facility websites and/or contacting facilities directly. Amgen neither recommends nor endorses, and may or may not have financial relationships with, any facility that appears on this list. This list is not intended to be a comprehensive list nor as a referral to any provider listed. If you would like to suggest a facility to be added to this list, please contact Amgen MedInfo at 800-77-AMGEN.

LOCATION	FACILITY NAME	MRD TEST	WEBSITE	PHONE NUMBER
Seattle, WA	Adaptive Biotechnologies	NGS	https://www.adaptivebiotech.com	(855) 466-8667
Royal Oak, MI	Beaumont Health	Flow Cytometry	http://www.beaumontlaboratory.com	(800) 551-0488
Seattle, WA	CellNetix	Flow Cytometry, PCR [Ph(+) only]	http://cellnetix.com/	(844) 344-4209
Cincinnati, OH	Cincinnati Children's Hospital	Flow Cytometry	https://www.cincinnatichildrens.org/service/c/cancer-blood/hcp/clinical-laboratories/immunopathology-lab	(513) 803-2567
Aurora, CO	ClinImmune Labs	Flow Cytometry	http://www.clinimmune.com/	(303) 724-7203
Durham, NC	Duke University (Molecular Diagnostics)	Flow Cytometry	https://clinlabs.duke.edu/molecular-diagnostics-laboratory	(919) 684-2698
Seattle, WA	Fred Hutchinson Cancer Research Center	Flow Cytometry, PCR [Ph(+) only]	https://research.fhcrc.org/radich/en/MolecularOncology.html	(206) 667-6630
Carlsbad, CA	Genoptix	Flow Cytometry	https://www.genoptix.com	(800) 755-1605
Seattle, WA	Hematologics, Inc.	Flow Cytometry, NGS	http://www.hematologics.com/	(206) 223-2700
Baltimore, MD	Johns Hopkins Medicine (Pathology)	Flow Cytometry	http://pathology.jhu.edu/department/index.cfm	(410) 955-2405
Boston, MA	Massachusetts General Hospital (Pathology)	Flow Cytometry	http://www.massgeneral.org/pathology	(617) 643-0800
Rochester, MN	Mayo Clinic	Flow Cytometry	https://www.mayocliniclabs.com/	(800) 533-1710
Houston, TX	MD Anderson Cancer Center (Molecular Diagnostics Laboratory)	Flow Cytometry, PCR	https://www.mdanderson.org/research/research-resources/core-facilities/molecular-diagnostics-lab.html	(713) 794-4780
National	NeoGenomics	Flow Cytometry, NGS	https://neogenomics.com/	(866) 776-5907
Columbus, OH	Ohio State University (Division of Molecular Pathology)	Flow Cytometry, PCR	https://pathology.osu.edu/ext/divisions/Clinical/molpath/	(614) 292-2064
National	Quest Diagnostics	PCR [Ph(+) only]	https://www.questdiagnostics.com	(866) 697-8378
Chapel Hill, NC	UNC Medical Center (McLendon Clinical Laboratories)	Flow Cytometry, PCR [Ph(+) only]	https://www.uncmedicalcenter.org/mclendon-clinical-laboratories/	(919) 966-2361
Kansas City, KS	University of Kansas Cancer Center	Flow Cytometry	http://www.kucancercenter.org	(913) 588-1227
Dallas, TX	UT Southwestern Medical Center (Department of Pathology)	Flow Cytometry	https://www.utswsouthwestern.edu/education/medical-school/departments/pathology/	(214) 648-4088
Seattle, WA	University of Washington (Hematopathology)	Flow Cytometry, PCR [Ph(+) only], NGS	http://uwhematopathology.wixsite.com/hemepath	(206) 606-7060
Nashville, TN	Vanderbilt (Pathology Lab Services)	Flow Cytometry	https://ww2.mc.vanderbilt.edu/vpls	(800) 551-5227
New Haven, CT	Yale Cancer Center (Laboratory Medicine)	Flow Cytometry, PCR [Ph(+) only]	https://www.yalecancercenter.org/	(203) 785-4095

This information is current as of October 2019. Amgen does not guarantee the accuracy of this information, and it is up to the individual physician to conduct his/her own research.

CDC, Centers for Disease Control and Prevention; CLIA, Clinical Laboratory Improvement Amendments; MRD, minimal residual disease; NGS, next-generation sequencing; PCR, polymerase chain reaction; Ph, Philadelphia chromosome.

*<https://www.cdc.gov/clia/Resources/LabSearch.aspx>

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