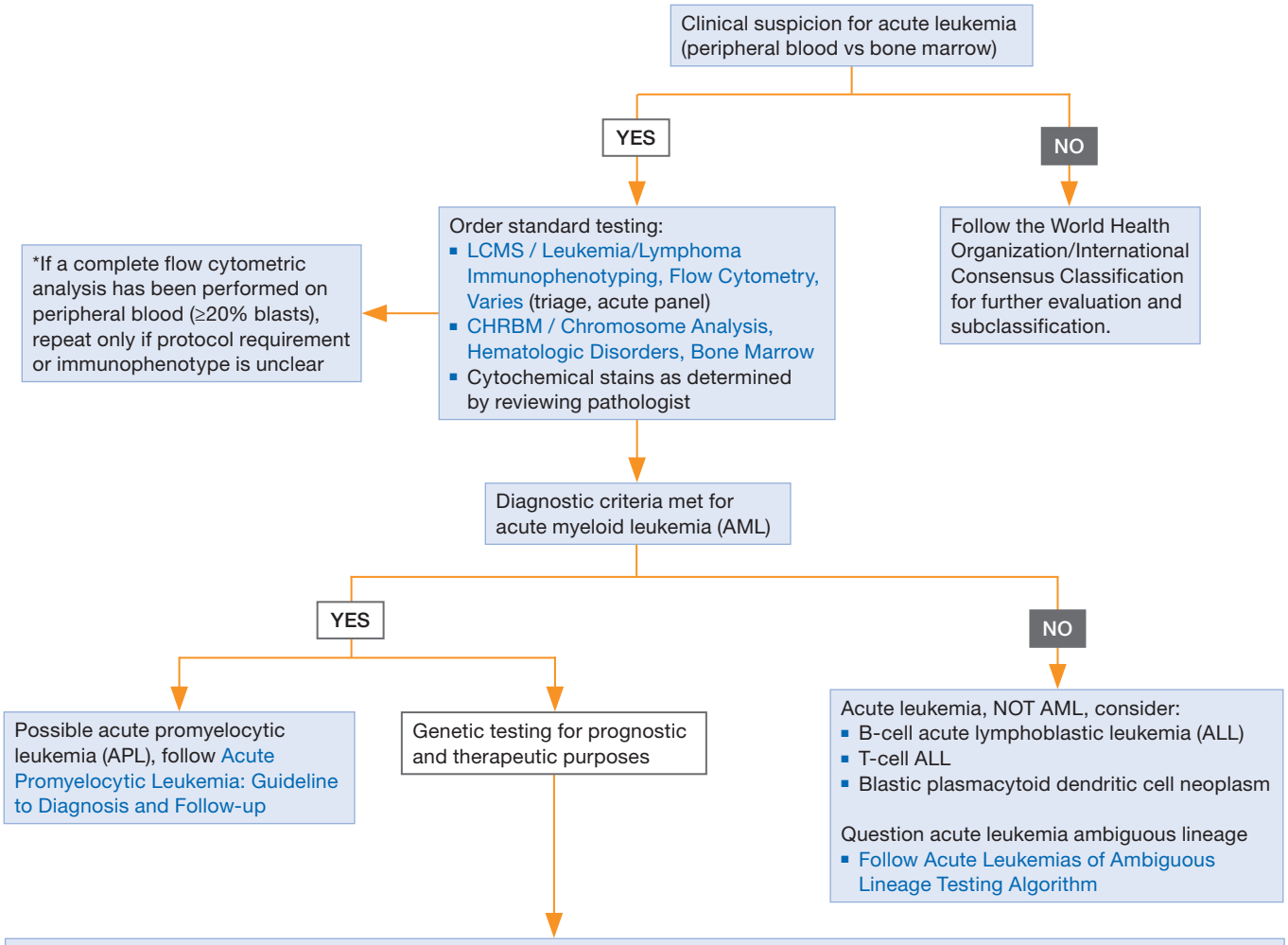
MAYO CLINIC LABORATORIES

Acute Myeloid Leukemia: Testing Algorithm



Order one of the following genetic tests on all AML cases:

- FLT / *FLT3* Mutation Analysis, Varies
- IDHQ/IDH1(R132) and IDH2 (R140 and R172) Quantitative Detection, Droplet Digital PCR, Varies
- NGSHM / MayoComplete Myeloid Neoplasms, Comprehensive OncoHeme Next-Generation Sequencing, Varies (including: *CEBPA, NPM1, IDH1, IDH2*, etc) or
- NGAML / MayoComplete Acute Myeloid Leukemia, 11-Gene Panel, Varies or
- NGAMT / MayoComplete Acute Myeloid Leukemia, Therapeutic Gene Mutation Panel *(FLT3, IDH1, IDH2, TP53)*, Next-Generation Sequencing, Varies

Reflexive testing performed based on initial pathologic and genetic findings:

- In the event of an unsuccessful/ambiguous cytogenetic result the appropriate AML fluorescence in situ hybridization (FISH) is performed based on patient age:

Adult (≥31 years)

- AMLAF / Acute Myeloid Leukemia (AML), FISH, Adult, Varies

Pediatric (≤30 years)

- AMLPF / Acute Myeloid Leukemia (AML), FISH, Pediatric, Varies

- Monocytic differentiation: Specify FISH probes for *KMT2A* (11q23) and inv(16), order AMLMF / Acute Myeloid Leukemia (AML), Specified FISH, Varies
- Morphologic suspicion of abnormal eosinophils: Specify FISH probes for inv(16) MYH11(R)/CBFB(G), order AMLMF
- For core-binding factor AML: Specify FISH probes for t(8;21) or inv(16), order AMLMF. Also order NGAML if NGSHM was not performed

Consider obtaining a baseline quantitative level by molecular measurable residual disease (MRD) testing for the following targets, if applicable:

- *NPM1*: order NPM1Q / Nucleophosmin (*NPM1*) Mutation Analysis, Varies
- *RUNX1-RUNX1T1*: order T821Q / *RUNX1-RUNX1T1* Translocation (8;21), Minimal Residual Disease Monitoring Quantitative, Varies
- *CBFB-MYH11*: order IN16Q / *CBFB-MYH11* Inversion(16),Quantitative Detection and Minimal Residual Disease Monitoring, qRT-PCR, Varies

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