

Complete blood count for screening?

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Clinical question

Is there evidence for screening with complete blood count (CBC) in asymptomatic, nonpregnant adults?

Bottom line

Neither CBC nor its components should be ordered for screening asymptomatic, nonpregnant adults, as it does not reduce mortality. Up to 11% of results are abnormal but less than 1% of results require management change. It is unclear which patients benefit and serious disease is almost never found.

Evidence


- A systematic review of 16 RCTs on periodic health checks found that 4 RCTs included CBC components with other screening tests and reported no cancer-specific or overall mortality reduction.¹
- A population screening study found that in 1080 non-pregnant women aged 20 to 64, 11% were anemic but none had colon cancer.²
- There were 11 observational case-finding studies:
 - In 799 ambulatory patients, 11% of 475 leukocyte tests had abnormal results but no asymptomatic disease was identified.³
 - Of 1540 CBC components tested, 6.4% had abnormal results, 1.2% were investigated, and 0.2% led to change.⁴
 - Others studies had similar results.⁵
- In 4 observational studies (214 to 1005 patients)⁶ on preoperative screening, management was changed in 0%, 0%, 0.2%, and 2% of cases, respectively.
- In 2 observational studies (301 and 302 patients) on admission screening, about 11% had abnormal CBC components and 0.6% or less led to management changes.^{7,8}
- Management change does not mean patients benefited.
- Harms of excessive investigation were not described.

Context

- When diseases are uncommon (about 1% prevalence), only about 16% of abnormal results indicate real disease.⁹
 - About 80% of abnormal leukocyte screening results were physiologic or test variance.²
 - Most abnormal results (60%) resolved by 18 months.⁴

- The Centers for Disease Control and Prevention, the US Preventive Services Task Force, and Choosing Wisely do not recommend screening with CBC.⁵ Only pregnancy screening is consistently advised.⁵
- About 70% of primary care clinicians would order a screening CBC for a 55-year-old woman.^{10,11}

Implementation

Complete blood count is not a useful test in asymptomatic individuals. The only "routine" bloodwork recommended is nonfasting lipid levels (in men ≥ 40 and women ≥ 50) every 5 years¹² and hemoglobin A_{1c} levels if the patient's CANRISK score is above 14, with frequency depending on risk.¹³ Other bloodwork depends on symptoms, signs, or risks. Preprinted laboratory requisitions are discouraged,¹⁰ given the individualization of patient care. 

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Competing interests
None declared

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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