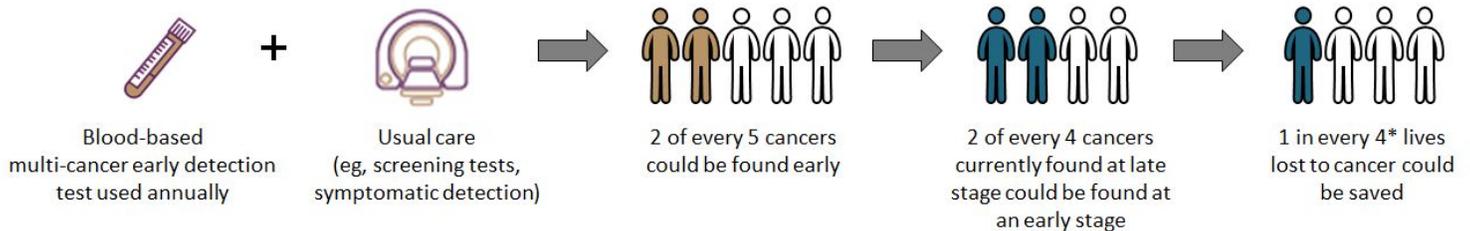**"Modeled reductions in late-stage cancer with a multi-cancer early detection test"**
**Lay Summary**

-- Data Published in *Cancer Epidemiology, Biomarkers & Prevention*, December 16, 2020 --



Blood-based multi-cancer early detection test used annually

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Usual care (eg, screening tests, symptomatic detection)

2 of every 5 cancers could be found early

2 of every 4 cancers currently found at late stage could be found at an early stage

1 in every 4* lives lost to cancer could be saved

*Within overall five-year cancer deaths

Cancer is the number one cause of death in the United States among people younger than 80 years old. Most cancer deaths occur when cancer is detected too late.[1] Current screening tests, such as mammograms, save lives, however, current screening tests are recommended for only a few cancers and look for only 1 cancer at a time.[1] Even with existing screening, most cancers are found because of symptoms when it is too late. Furthermore, 7 out of 10 cancer deaths are for cancers with no recommended screening.[2,3] That's why GRAIL has developed a multi-cancer early detection (MCED) test that looks for many cancers at the same time from a single blood draw.[4] The MCED test is designed to help complement existing screenings and be incorporated into the current standard of care. Doing so could help health care providers (HCPs) detect more cancers and find them earlier, when treatment is more likely to be effective.[2-4] Finding and treating cancers earlier could potentially save many lives.

To better understand the potential impacts of GRAIL's MCED test on cancer detection and mortality, researchers modeled the combined benefits of the MCED test when added to the current standard of care for cancer screening and detection (this includes patients diagnosed once symptomatic). To do this, they created a model for all cancer types. The model was based

on the number of people in the United States who are diagnosed with cancer of various stages each year. The model then applied details of how the MCED test works to detect multiple cancer types with a single blood draw to determine what cancers could be found, and how early they could be found.

The model examined the case where the MCED test was used once per year, and found that 2 in 5 cancers could be detected by the MCED test before usual care. This ability to detect (intercept) cancers before they reach late stage (stage III+IV) could potentially reduce late stage cancer diagnoses by more than half in the US. Importantly, because most immediate (within 5 years of diagnosis) deaths occur from late stage cancer, finding this number of cancers early could reduce such deaths by a quarter.

Results of this model were published in December 2020 in *Cancer Epidemiology, Biomarkers, & Prevention* and demonstrated that this MCED test could catch cancers much earlier and potentially reduce cancer mortality substantially. A version of this MCED test, called Galleri, is expected to be available in 2021.

Published Article:
https://cebp.aacrjournals.org/content/early/2020/12/12/1055-9965.EPI-20-1134
Authors: Earl Hubbell, Christina A. Clarke, Alexander M. Aravanis and Christine D. Berg

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