The controversial improvement in LC survival—Cautionary note about the “value” of new technology

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Two Very Different Views of why LC survival is higher
Who gets the credit for better survival?

- Howlander N: Advances in therapy have improved survival. There’s not enough LC screening to have mattered

VS

- Flores R: Most of the improvement was generated by shift to earlier stage. Better follow-up to indeterminate pulmonary nodules is likely cause of stage shift. There was also some improvement in late-stage survival, which likely reflects better therapy.
  - Association of Stage Shift and Population Mortality among Patients with Non–Small Cell Lung Cancer. *JAMA Network Open Oncology* 2021
  - Disclosure: I am a co-author
Lung Cancer Mortality Has Declined!

Howlader et al.

Figure 1. Mortality Estimates Based on Data from Death Certificates and on Incidence among Patients with Lung or Bronchus Cancer.

Howlader, 2020
Incidence-based Survival Has Improved

Figure 3. Non–Small-Cell Lung-Cancer (NSCLC) Incidence, Incidence-Based Mortality, and Survival Trends among Men and Women. Howlander, 2020
Lung Cancer Stage Shift: 2006 to 2016 (from Flores R)

Figure 2. Shift in Stage at Diagnosis Over Time, 2006-2016

Flores 2021

Selected Cancers: How are Early-Stage Cases Found without Screening? CDC Data 2015-2019

Selected Cancers: % Localized, Approx Annual # Cases Localized

- **Esophagus**: 19.7% (3K)
- **Liver**: 45.0% (15K)
- **Lung**: 26.2% (57K)
- **Ovary**: 20.8% (4K)
- **Pancreas**: 15.1% (7K)
- **Stomach**: 30.9% (7K)

COVID and the “lucky” early-stage diagnoses. Debate: Value of Early Detection vs Better Treatment

- Early stage cancers are often “bonus findings” of other medical events and imaging
  - Especially for cancers where screening is under-used or unavailable
  - “Incidental findings” often misrepresents the significance, especially in a high-risk individual
  - Early stage findings may point to new screening opportunities

- COVID led to a dramatic decline in imaging and medical interactions
- Will we see a shift toward later stage diagnoses?
- Will we see cancer mortality get worse over next few years?