Personalized Future Lung Cancer Risk Assessment from a Single LDCT: The Sybil Machine Learning Algorithm

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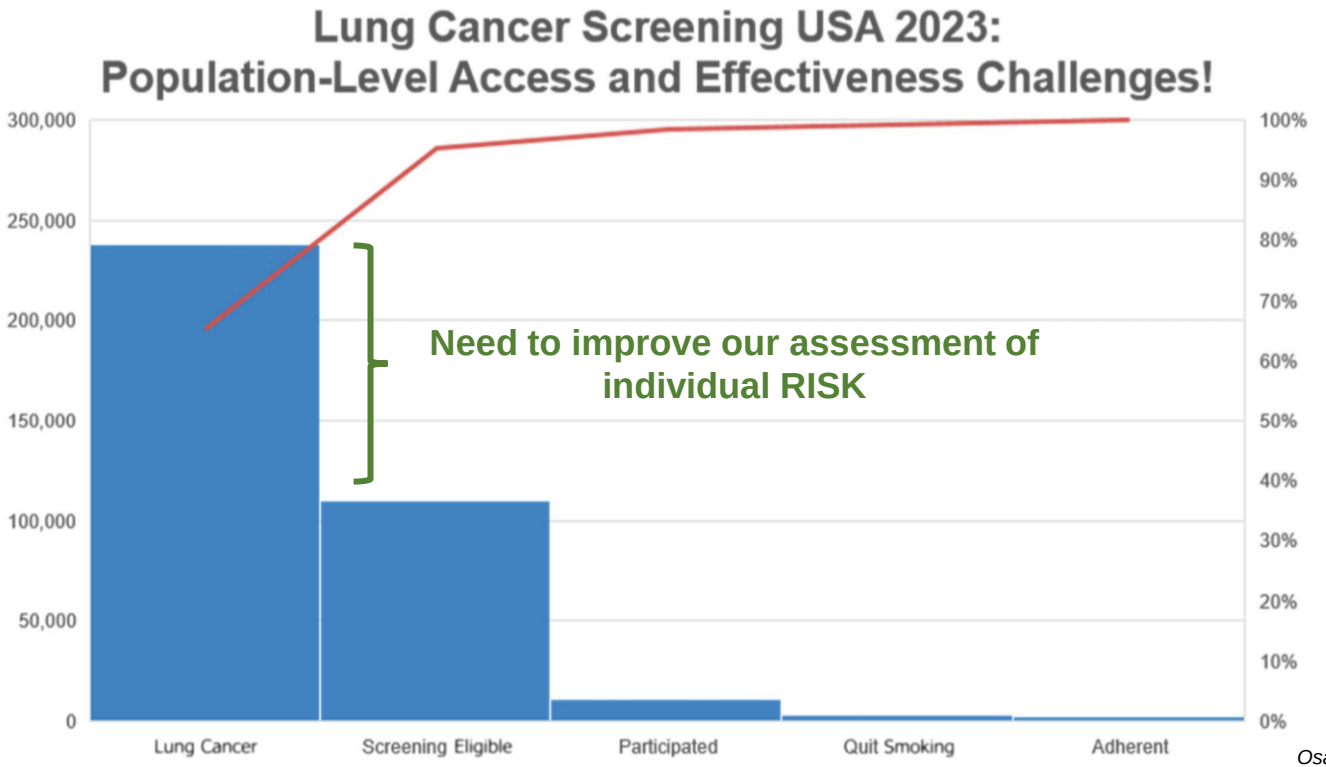
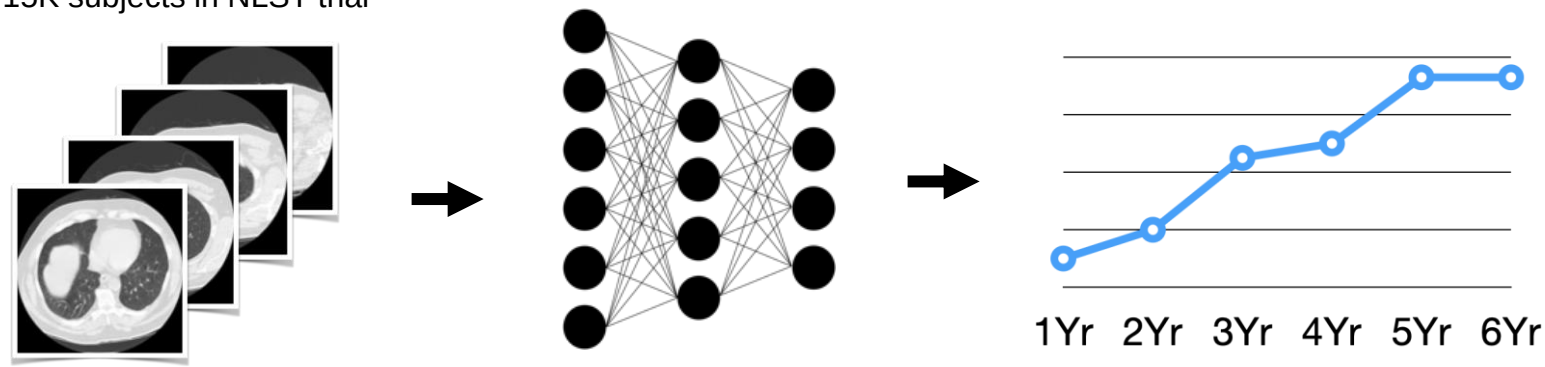
The Progblems of the grasp and reach of LCS



Osarogiagbon et al, ASCO Ed Book 2023

Sybil: Individualized Future Cancer Risk

> 44K LDCT exams from
> 15K subjects in NLST trial

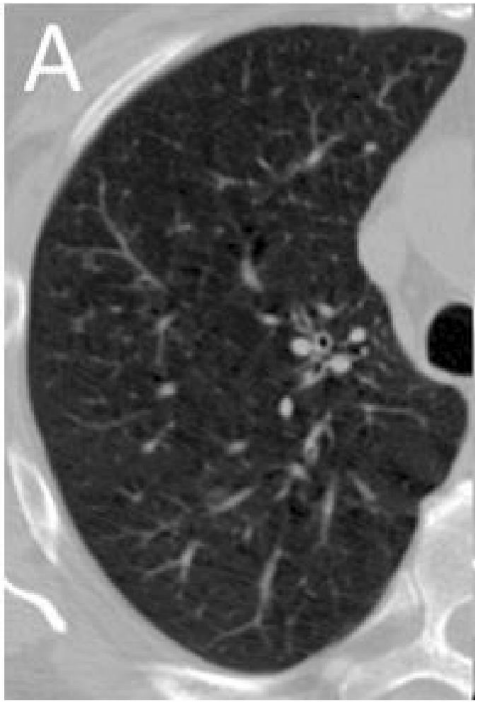


Key Advantages

- No image annotation
- No clinical data needed
- Instant readouts
- Multi-year future risk stratification from single CT
- Accurate near-term risk stratification also

Mikhael, *J Clin Oncol* 2023

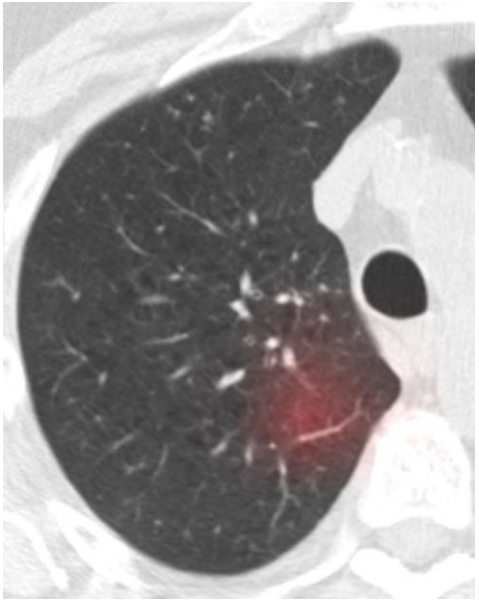
What is Sybil Seeing?



69-year-old male with
99 pack-year smoking hx

Baseline scan read by radiologist as “negative screen, minor abnormalities not suspicious for lung cancer”

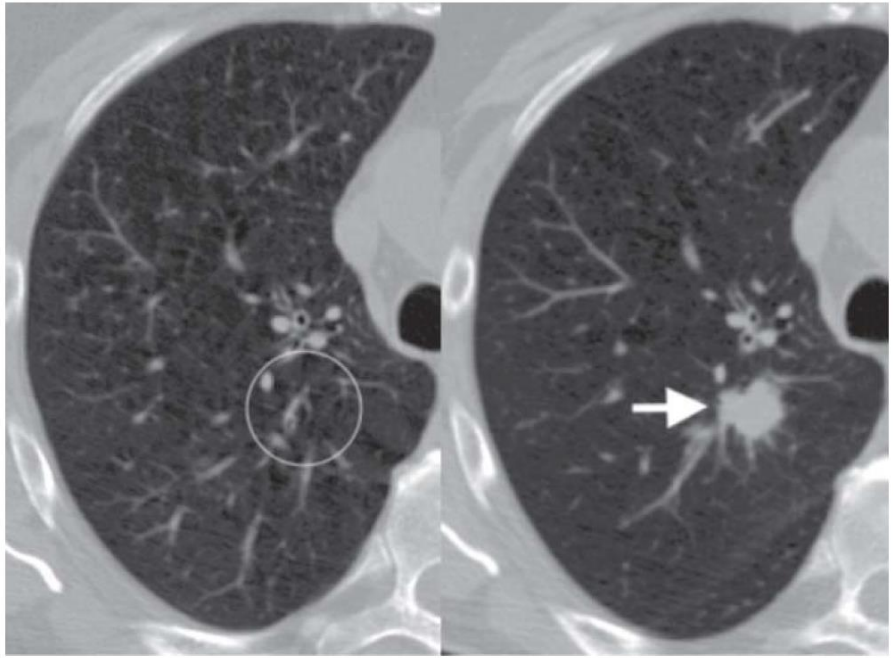
Sybil placed scan in 75% risk percentile (6-year risk)



Sybil “attention map”
(note this is *not* a PET scan)

Mikhael, *J Clin Oncol* 2023

What is Sybil Seeing?



Mikhael, *J Clin Oncol* 2023

- The following year, a worrisome nodule appeared in the location Sybil was focused on for risk assessment.
- Pt had surgery for a 2.2 cm poorly-differentiated squamous cell lung cancer (pT1cN0)

Sybil "attention map"
(*not* a PET scan)