NASEM Committee on Addressing Evidence Gaps in Clinical Prevention

Pathways to Addressing Evidence Gaps

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Disclaimer: Views are mine and not those of the USPSTF

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Evidence Considerations in Disease Prevention/Screening

Colorectal Cancer as a model on Evidence Gaps

The condition

- Public health importance
- Knowledge of the epidemiology
  - *Detectable risk factors, and disease markers*
- Natural history of the condition
  - *Development from latent to clinical disease*
  - *Detectable latent period or early symptomatic stage.*
- Primary prevention interventions
  - Safety and effectiveness.

Equity

- Biases in risk assessment, delivery (quality), and treatment

The test

- Safe, precise, and validated screening test:
  - *Analytic validity, clinical validity, clinical utility, and ethical (ACCE)*
  - *How does the screening test work? What does an abnormal result mean?*
  - *To what degree does quality vary?*
- Acceptability and feasibility of the test
  - *Implementation (demand, access, delivery)*
- Clearly defined diagnostic pathway for a positive test result.

The treatment

- Effectiveness of treatment
  - *Early treatment should lead to better outcomes than late treatment.*

Wilson J, Junger G: Principles and practice of screening for disease. WHO 1968.
UK National Screening Committee, 2003

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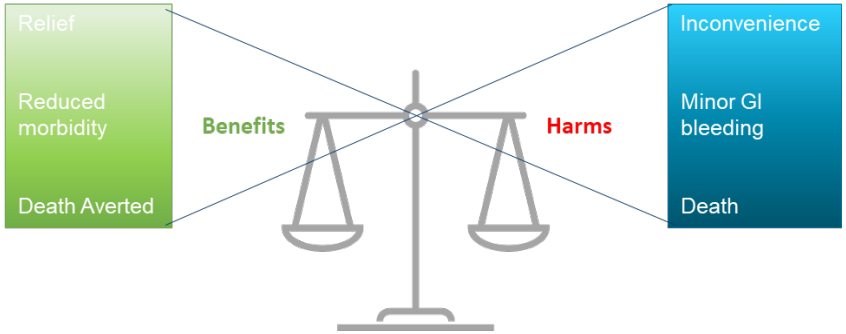
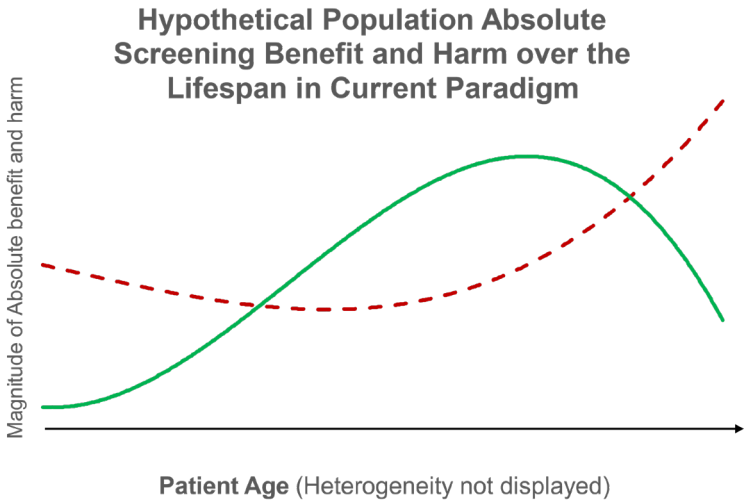
Colorectal Cancer Recommendations

Type	Population (Age)	Grade
Screening (Draft)	50-75	A
	45-49	B
	76-85	C
Prevention (ASA + CVD risk)	50-59	B
	60-69	C
	<50/>70	I





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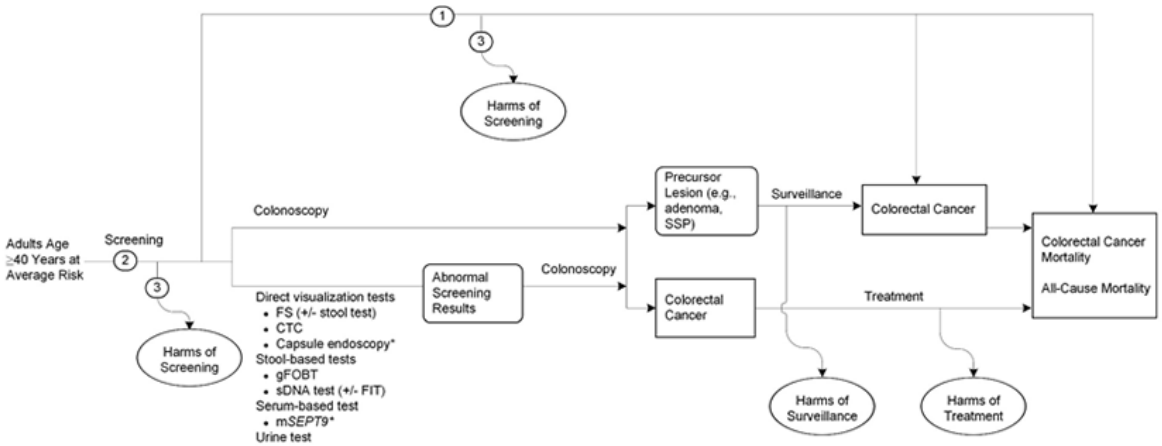
The Analytic Framework as the "Evidence Gap Engine"



In the background is a matrix similar to this on evidence gaps

	PICOTS + Inclusiveness	Benefits	Harms
Prevention	Influences at **Multiple Levels** affect the ability to arrive at a recommendation or realize the benefits of the recommended clinical preventive service Implementation (Demand, Access, Delivery, Capacity, Equity)		
Risk Assessment / Risk Stratification			
Screening/ detection			
Follow-up/ Surveillance			
Treatment			

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Decision Matrix for Evidence Priorities

Importance of the clinical condition

- Population impact
- Evidence of groups that are disproportionately affected?

Analytic Framework

- Risk assessment or screening tests
- Accuracy of screening
- Effectiveness and harms of screening (direct and indirect pathway)

Amenable to prevention/early detection?

- Is death or morbidity preventable?
- Amenable to screening or prevention?
- Is screen-detected treatment effective and may overweigh harms?

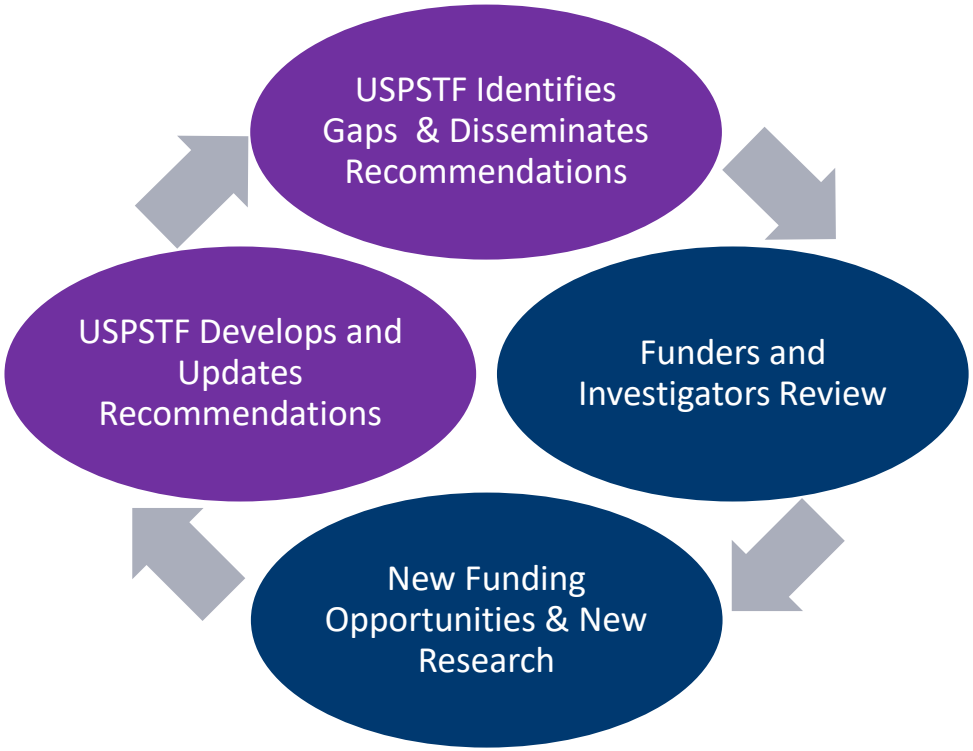
Assessing the Evidence

- Population
- Intervention/Comparator
- Outcome(s)
- Timing (treatment/follow-up duration)
- Setting (primary care, human development index)
- ***Inclusiveness, Equity considerations, & community integration***

General Guidance on What's Needed to Fill Gaps

- Examine preventive services conducted in the **primary care setting** or that are referable from primary care
- Methods:
  - **Populations most affected by the condition of interest**
  - Populations **without obvious signs or symptoms** of the condition
  - **Rigorous study design** appropriate for the question, such as high-quality RCT or observational study
  - Compare outcomes for a **screened versus unscreened** population

Iterative Research Gaps Life Cycle

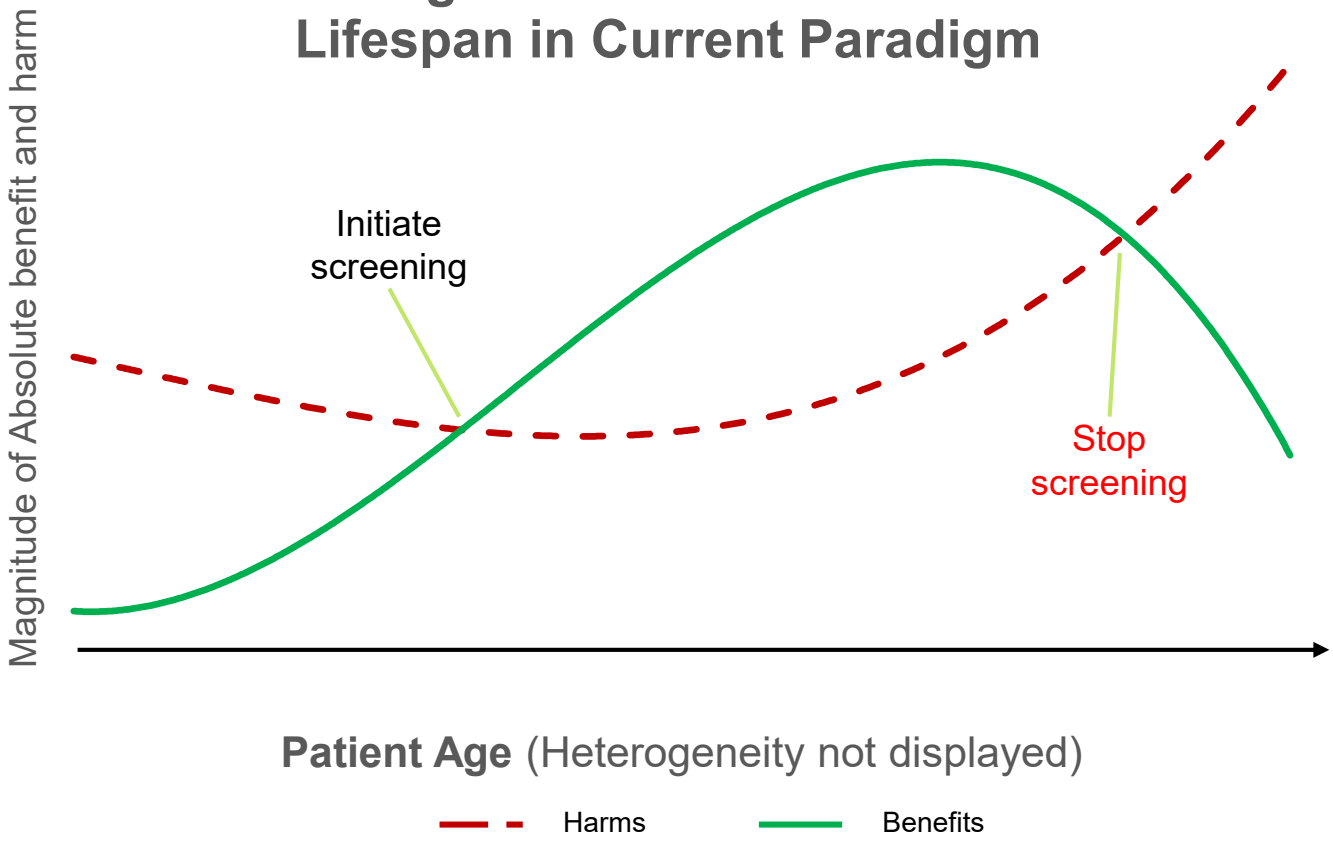


- Depend on the maturity of the evidentiary chain
  - An I statement
  - Grades A or D based indirect evidence
- **Societal context (i.e., structural racism)**

Ways USPSTF Highlights Evidence Gaps

- **Embedded in I statements (n=54)**
  - USPSTF issues "I statements" when the current evidence is:
    - Lacking, of poor quality, or conflicting, and
    - USPSTF is unable to assess the balance of benefits and harms of the clinical preventive service
- **Included in the Recommendations and Evidence Reviews (N=85)**
  - In all recommendation statements, the USPSTF includes a section called "Research Needs and Gaps"
  - Embedded in the evidence reviews process, including:
    - Populations that have a higher prevalence or experience greater morbidity or mortality from the condition of interest

Hypothetical Population Absolute Screening Benefit and Harm over the Lifespan in Current Paradigm



Some Questions:

- **How shall we define screening?**
- Accuracy of risk assessment?
- Equity in risk assessment
- Effectiveness of various test in routine use in clinical practice taking into account variability in patient completion and provider performance
- Effectiveness under various levels of adherence to screening
- Comparative effectiveness of strategies
- Knowing when to start and when to stop to optimize benefits
- **How to embed achieve health equity**

Some Current Gaps on Colorectal Cancer Screening

- RCT comparing different screening strategies on colorectal cancer mortality.
- Screening effectiveness and accuracy of screening tests in populations that are disproportionately affected and adults younger than age 50 years.
- Factors that contribute to increased colorectal cancer incidence and mortality in populations that are disproportionately affected.
- Direct evidence of effectiveness of screening with sDNA-FIT and outcomes of abnormal sDNA-FIT results but negative colonoscopies.
- Direct evidence of safety and effectiveness of screening with CT colonography.
- Uptake and adherence to individual screening tests
  - The effect of adherence on the overall benefits of a screening program.
  - Accuracy and effectiveness of emerging screening technologies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