

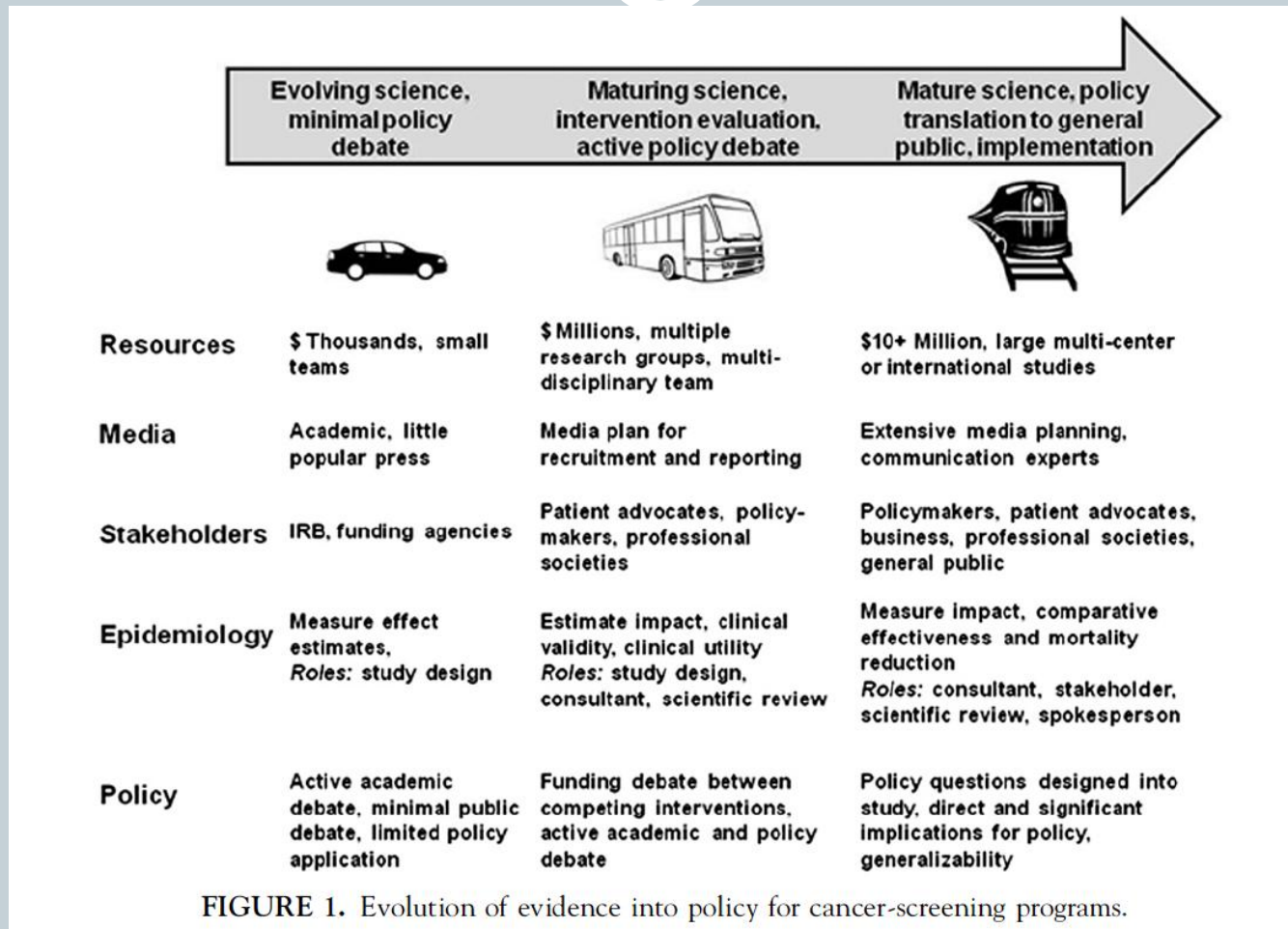
# Cancer Screening



## THE JOURNEY FROM EPIDEMIOLOGY TO POLICY

Deppen, S. A., M. C. Aldrich, P. Hartge, C.D. Berg, G.A. Colditz, D.B. Petitti, and R.A. Hatt. (2012). "Cancer Screening: The Journey from Epidemiology to Policy." *Annals of Epidemiology* **22**(6): 439-445.

# Cancer Screening from Evidence to Policy



# Stage 1: In the Car



Evolving science,  
minimal policy  
debate



\$ Thousands, small  
teams

Academic, little  
popular press

IRB, funding agencies

Measure effect  
estimates,  
Roles: study design

Active academic  
debate, minimal public  
debate, limited policy  
application

- Screening procedures in early development
- Traditional role of epidemiologists as researchers
- Findings communicated primarily in the academic community
- Few other passengers on the journey

# Stage 2: On the Bus



**Maturing science,  
intervention evaluation,  
active policy debate**



**\$ Millions, multiple  
research groups, multi-  
disciplinary team**

**Media plan for  
recruitment and reporting**

**Patient advocates, policy-  
makers, professional  
societies**

**Estimate impact, clinical  
validity, clinical utility  
Roles: study design,  
consultant, scientific review**

**Funding debate between  
competing interventions,  
active academic and policy  
debate**

- More mature evidence of etiology and potential screening effectiveness
- More complicated research (clinical trials)
- Epidemiologists take on broadened roles
  - Conduct research
  - Serve as consultants or content experts
  - Collate, codify, and communicate research results to the public or policy makers
- Many more participants in the journey
  - Including participants from other fields

# Stage 3: On the Train



**Mature science, policy translation to general public, implementation**



**\$10+ Million, large multi-center or international studies**

**Extensive media planning, communication experts**

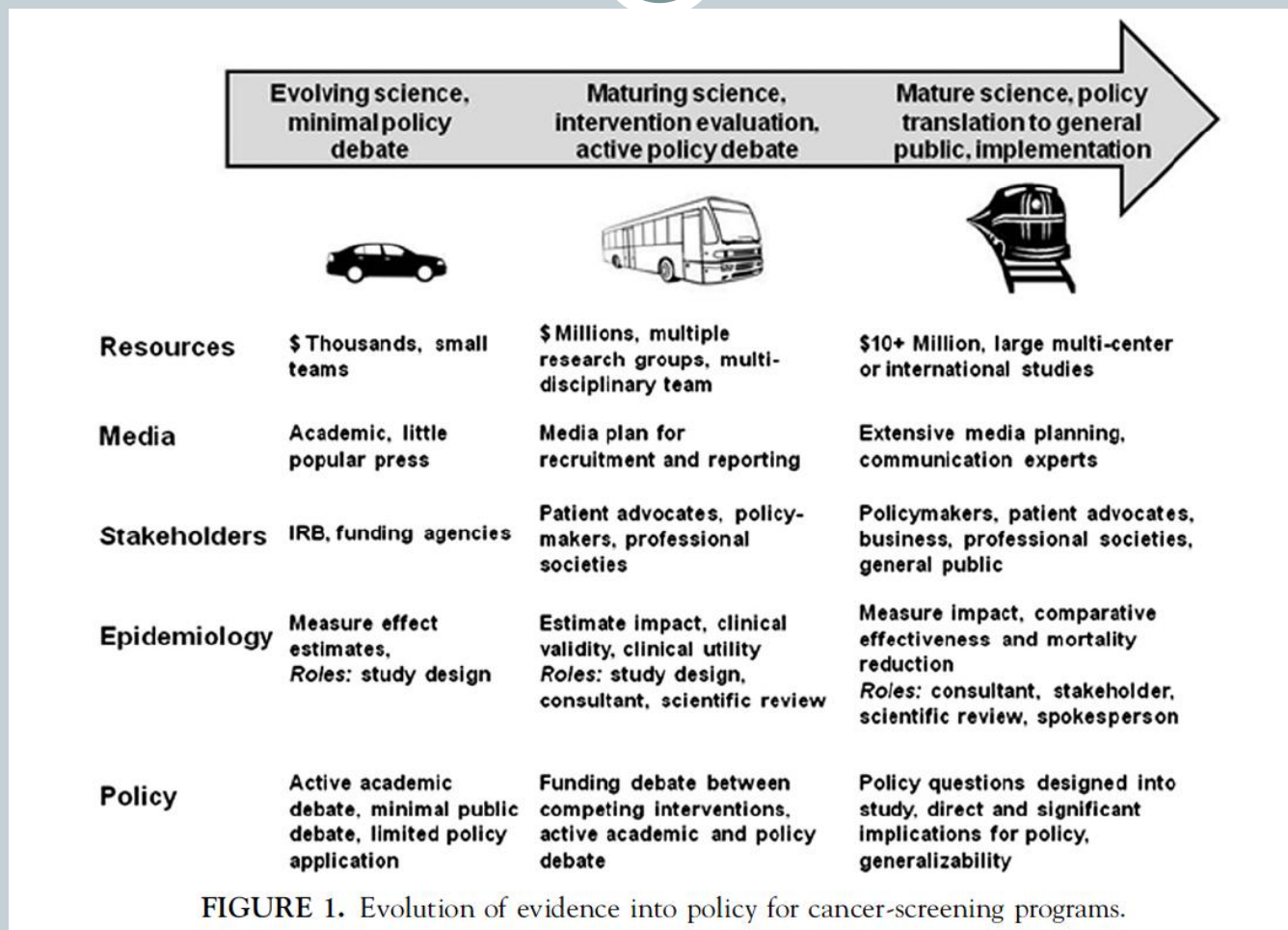
**Policymakers, patient advocates, business, professional societies, general public**

**Measure impact, comparative effectiveness and mortality reduction**  
**Roles: consultant, stakeholder, scientific review, spokesperson**

**Policy questions designed into study, direct and significant implications for policy, generalizability**

- Mature scientific and policy environment
- Incremental changes require large studies
- Epidemiologist is one among many disciplines
  - Continue previous roles
  - Also act as a spokesperson for policy or scientific positions
- The journey is now being made by a multitude
  - Debate has shifted into the media

# Breast Cancer Screening: On the Train



# Breast Cancer Screening: On the Train



- 1989: First USPSTF Breast Cancer Screening Guideline: Screening for women aged 50 every 1 to 2 years
- 1996: USPSTF gives screening for women aged 40 to 49 a C grade (insufficient evidence)
- 2001: USPSTF upgrades screening for women aged 40 to 49 to a B grade (moderate benefit)

# Breast Cancer Screening: On the Train



- 2009: USPSTF downgrades screening before age 50 to a C grade (insufficient evidence)
- Evidence:
  - Significant over-diagnosis, especially among younger women
  - Biennial screening is as effective as annual screening
- Reaction:
  - Described as a step backward by advocates
  - Specifically contradicted in the PPACA



# Why is the USPSTF so important?



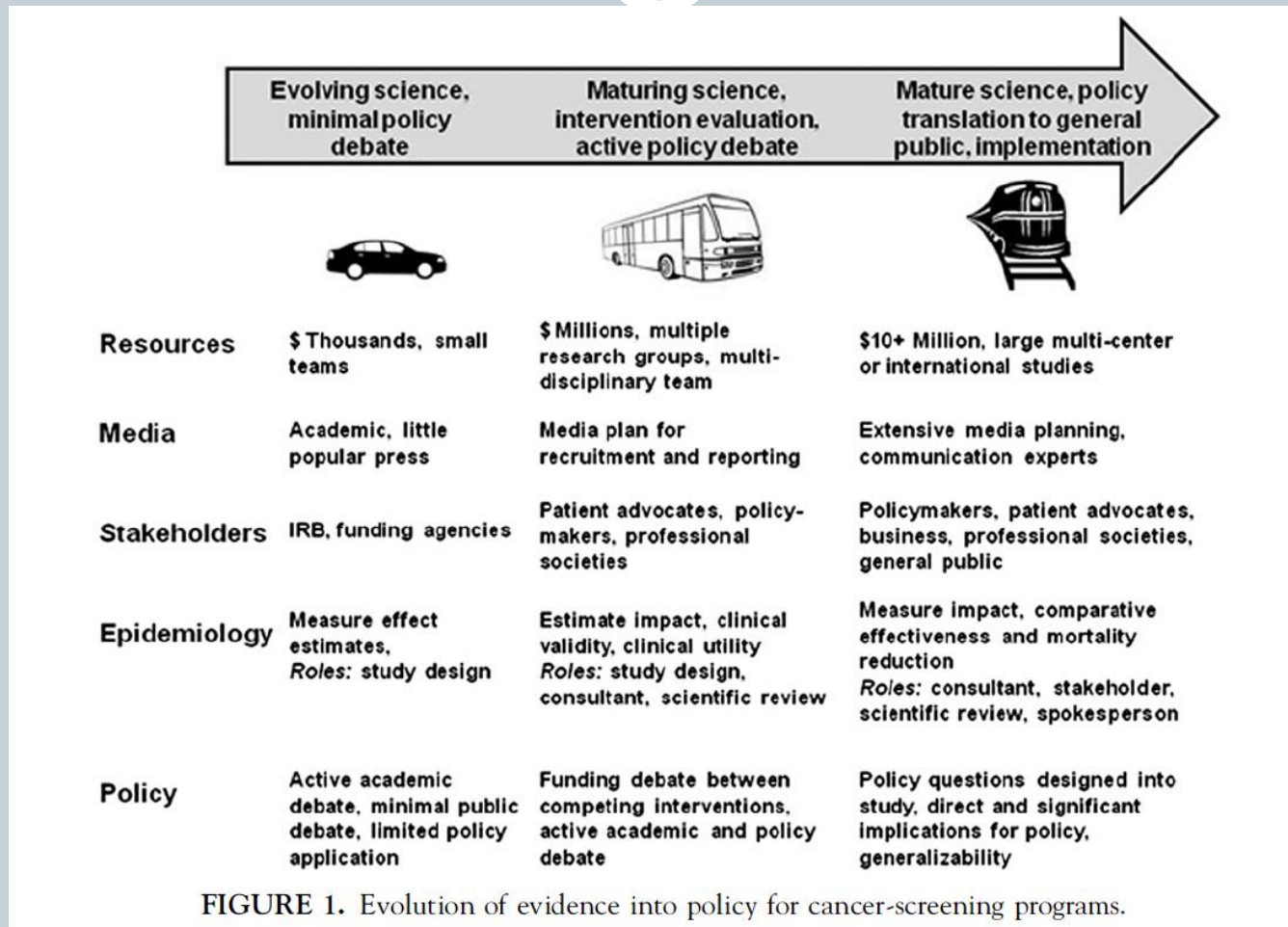
- Widely accepted, robust process to review medical evidence
- PPACA legislated that services the Task Force finds as having significant (A) or moderate (B) benefit MUST be covered by insurance.



<http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/html/PLAW-111publ148.htm>

<http://www.uspreventiveservicestaskforce.org/uspstf/uspsabrecs.htm>

# Lung Cancer Screening: In the Car



# Lung Cancer Screening: In the Car



- **Early Hopes**

- Chest X-Ray and Sputum Cytology
- No improvements in mortality based on limited trials
- 1996: USPSTF recommends against chest x-ray and sputum cytology



# Lung Cancer Screening: In the Car



- Low-dose computed tomography (CT)
  - Mixed results in non-randomized studies
    - ✦ Some found increased survival
    - ✦ Others showed no reduction in pathological stage or mortality
  - Large randomized trial (National Lung Screening Trial)
    - ✦ Halted in November 2010 showing 20% reduction in mortality
  - Lung cancer requires invasive surgery at early stages
    - ✦ 96.4% false positive rate in low dose CT arm
    - ✦ Costs and consequences of false-positives remain unknown
- USPSTF 2004 recommendations conclude insufficient evidence
- USPSTF 2013 recommendations under review

# Lessons Learned



- **Any Screening Study Can Have Policy Implications**
  - USPSTF reviews can pull in any study
- **Communicate Results and Inform Policy**
  - Media allows only one opportunity to deliver a message effectively
  - Communication planning must include:
    - ✦ Review of research results
    - ✦ Basis for recommendations
    - ✦ Implications for funding agencies, coalition members, and others
    - ✦ Possible concerns and questions from politicians, policy makers, and other stakeholders

# Lessons Learned



- Map the Scientific, Cultural, Political, and Policy Terrain
  - For example: many people view lung cancer as an avoidable, self-inflicted disease
  - This limits what resources policy makers will be willing to dedicate to lung cancer



# Lessons Learned



- Know When to Get Help Communicating Results or Promoting Policy
  - A successful marketing or policy agenda is often not in the epidemiologist's toolbox



# Lessons Learned



- **Create Coalitions and Partnerships**
  - Makes desired outcome or intervention more likely
- **Be Prepared for Changes in Political Environment or Public Opinion**
  - Coalition members are often the first to be aware of changes
  - Being ready with data and compelling arguments can be just the right lever to move a policy agenda forward





# Lessons Learned



- **Stay on Message, Know Your Role**
  - Epidemiologists should only speak about their area of expertise
  - Avoid speculation, comparisons without data
  - Aim for simplicity and singularity of focus

