Purpose

To describe the current landscape for Cancer Health Economics research

- What research is being done now? [Portfolio of funded research]
- What do we already know? [Literature review]
- What are the gaps in the research? [Synthesis]
Potential range of review topics

Economic Inputs
- Insurance coverage
- Benefit Design
- Access to Care
- Price of care
- Social Determinants of Health
- Employee Benefits

Cancer Control Continuum
- Prevention
- Screening
- Treatment
- Survivorship
- End-of-Life

Structural Factors
- Cancer care workforce
- Health care organizations/system
- Availability of personnel, services, and technologies

Policy Factors
- Coverage and eligibility
- Payments/payment models
- Federal or state mandates
- Regulatory factors
- Innovation and technology diffusion

Patient-Level Outcomes
- Survival
- QALYs
- Patient Costs
- Financial Hardship
- Variations by Patient/Provider Characteristics
- Employment Impacts

Payer-, Provider-, System- and Societal-Level Outcomes
- Cost-Effectiveness
- Value of Care
- Cost of Care
- Health Equity
- Quality of Care
Criteria and Process for Literature Review

- PubMed search criteria:
  - (((systematic review[Publication Type]) AND neoplasms[MeSH Terms]) AND economics[MeSH Terms]) AND English[Language];
  - restricted to publications within the last 10 years; ≥ 2 U.S. studies
- Each publication reviewed by 2 reviewers (MH, KA, and/or AJD)
- Applied additional inclusion/exclusion criteria
- Included publications were categorized according to:
  - Economic study type
  - Cancer Type
  - Phase of cancer continuum; relevant population
  - Nature of treatment or other intervention
Inclusion and Exclusion Criteria

Does content fit into one of three broad categories of cancer health economics research?

- Economic outcomes associated with cancer, cancer care
- Economics of cancer healthcare delivery – who pays for care, how much is paid, who receives payment
- Methods used in cancer economics research

Excluded:

- Reviews focused only on person-level characteristics such as race, ethnicity, income, education or insurance
- “Reviews” used to populate decision models with parameter estimates
- <2 studies on U.S. populations
Overview of Review Articles

- Total of 352 reviews identified
  - 164 met full study criteria
  - 17 reviews searched for, but failed to find, economic studies.
    - Reveal selected gaps in literature
Percentage of Reviews by Type of Cancer Health Economic Studies

Reviews focus primarily on CEA/CUA and cost of care studies

- **CEA/CUA/CBA**: 70.7%
- **Cost of Care, Cost of Illness**: 41.4%
- **Cost minimization analysis**: 2.2%
- **Healthcare utilization**: 3.9%
- **Economic Burden/Hardship/Toxicity**: 3.3%
- **Policy**: 2.2%
- **Methods**: 8.3%
Percentage of Reviews by Cancer Continuum Focus

Most reviews focus on the treatment phase

- Prevention: 6.6%
- Screening: 14.9%
- Diagnosis/Staging/Treatment Planning: 6.6%
- Treatment: 68.5%
- Survivorship/EoL: 13.3%
Most reviews focus on topics that cut across cancer types.

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-cutting</td>
<td>27.6</td>
</tr>
<tr>
<td>Breast</td>
<td>21.0</td>
</tr>
<tr>
<td>Colorectal</td>
<td>11.6</td>
</tr>
<tr>
<td>Female gyn</td>
<td>8.3</td>
</tr>
<tr>
<td>Prostate</td>
<td>6.6</td>
</tr>
<tr>
<td>Hematologic Malignancies</td>
<td>6.6</td>
</tr>
<tr>
<td>HPV-related</td>
<td>6.6</td>
</tr>
<tr>
<td>Lung</td>
<td>6.1</td>
</tr>
<tr>
<td>Gastro-esophageal</td>
<td>3.9</td>
</tr>
<tr>
<td>Renal/bladder</td>
<td>3.3</td>
</tr>
<tr>
<td>Melanoma/Other skin</td>
<td>2.8</td>
</tr>
</tbody>
</table>
## Sample Topics of Individual Reviews

<table>
<thead>
<tr>
<th>Prevention &amp; Screening</th>
<th>Diagnostics</th>
<th>Treatment</th>
<th>Survivorship</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV vaccines</td>
<td>imaging, advanced</td>
<td>CAR-T ablation of liver metastases</td>
<td>EoL care discussions</td>
</tr>
<tr>
<td>colonoscopy</td>
<td>companion diagnostics</td>
<td>home IV treatment</td>
<td>exercise, PT</td>
</tr>
<tr>
<td>low-dose CT</td>
<td>cystoscopy</td>
<td>immunotherapy</td>
<td>lymphedema management</td>
</tr>
<tr>
<td>mammography</td>
<td>endobronchial ultrasound</td>
<td>monoclonal antibodies</td>
<td>pain management</td>
</tr>
<tr>
<td>prostate specific antigen</td>
<td>endoscopic ultrasound</td>
<td>adverse events</td>
<td>rehabilitation</td>
</tr>
<tr>
<td>genetic risk assessment</td>
<td>fecal immunochemical testing</td>
<td>targeted therapies</td>
<td>supportive care, bone mets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>transplant</td>
<td>supportive care, growth factors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>radiation therapy</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

- Reviews identified reflect strong focus on cost, CEA (economic outcomes)
  - few reviews focusing on policy, provider organization, payment or response to incentives
- > 2/3 of reviews focus on cancer treatment phase of continuum
  - < 1/6 focus on screening or survivorship
- Focus commonly cuts across multiple cancers, examining treatment or intervention not specific to individual cancer site (e.g. management of bone metastases)
  - Otherwise, > 1/5 of reviews focus on breast cancer
Discussion Continued

- Limitations – Medline search general, may have missed content areas that did not use specific MESH headings of neoplasm and economics.
  - Next steps: more targeted searches with specific topic areas noted
  - Invite contributions from the research community
- Literature reviews have inherent limitations, for purposes of gap analysis
  - Do not capture ongoing research.
  - Review topics not selected systematically.
    - Reflect interests & needs of individual researchers or funders (e.g. device or pharmaceutical industry).
    - May overlook topical areas with extensive literature.