Seven Principles Toward Accountable Care in Radiation Oncology

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Institute of Medicine
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Disclosures

• National Radiation Oncology Registry
• NCI, ACS, philanthropic funding
Seven Principles of Accountable Care

1. Move beyond fee-for-service payment, separating cancer specialists’ incomes from treatment choices
   – Technical and professional reimbursement
Adoption of Advanced Radiotherapy Technology Is Rapid and Costly

Substitution of IMRT for 3DCRT in Prostate Cancer

Adoption of Brachytherapy in Breast Cancer

Between 2002 and 2005, > $1 Bn estimated additional direct costs associated with IMRT for prostate cancer

Reimbursement Policy and Practice Setting Influence Adoption . . .

Adoption of IMRT
In Breast Cancer, by Medicare Carrier Local Coverage Determination

Adoption of IMRT
In Breast Cancer, by Practice Setting

Proportion of Patients Treated

Source: SEER-Medicare analyses: Smith BD (2011)
and Affect Translation of Evidence to Practice

Outpatient Radiation for Bone Metastases from Prostate Cancer, by Practice Setting, 2005 - 2009

Proportion of Radiation Courses Treated

Seven Principles of Accountable Care

2. Align provider incentives toward patient-centric, coordinated care among cancer specialists and PCPs
Multi-Disciplinary and Fragmented Cancer Care

Seven Principles of Accountable Care

3. Link guideline-concordant care to shared savings from global payments
   - Retain patient choice among high quality providers
   - Improve risk adjustment
Two Models of Accountable Care

**Modality-Based**

Example:
*Care pathway or bundled payment for uncomplicated bone metastasis*

- Likely feasible
- Limited impact on care coordination

**Diagnosis-Based**

Example:
*Global payment for localized prostate cancer*

- ‘Cancer Care Groups’
- Requires diagnosis-based panels of surgical, radiation, medical oncologists
- Greater impact on care coordination and linkage to primary care
- Challenging to implement
Seven Principles of Accountable Care

4. Provide feedback to patients, providers and payers through population-based performance measurement of care quality, outcomes and costs
   – Upgrade federally-supported state cancer registries to provide near-real time ascertainment of quality metrics, risk-adjusted outcomes, and costs by linking with claims databases
Seven Principles of Accountable Care

5. Address cancer specialists’ and hospital margins with transparency
   - Can high-quality specialists and facilities retain margins while the overall volume of services declines?
   - Transparency promotes market signaling
     • To hospitals
     • To radiation device industry
Seven Principles of Accountable Care

6. Incentivize radiation device industry to invest in evidence generation (with payers and federal/non-federal funders)
   – Fundamental shift in radiation device industry value proposition
   – Implement unique device identification for post-marketing surveillance
## Current CER is Limited

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Prostate</th>
<th>Breast</th>
<th>Lung</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Conformal vs Conventional</td>
<td>• Single RCT&lt;br&gt;• Observational studies</td>
<td>• No RCT</td>
<td>• Observational studies</td>
</tr>
<tr>
<td>IMRT vs non-IMRT</td>
<td>• No RCT&lt;br&gt;• Observational studies</td>
<td>• 3 RCTs</td>
<td>• No RCT</td>
</tr>
<tr>
<td>Proton therapy vs non-Proton therapy</td>
<td>• RCT and prospective registries accruing</td>
<td>• No RCT</td>
<td>• RCT and prospective registries accruing</td>
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</tbody>
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Source: Literature and expert review
Opportunity for Radiation Device Industry to Invest in Evidence Generation

R&D Spend of Leading Companies as Proportion of Sales

<table>
<thead>
<tr>
<th>Medical Products</th>
<th>Medical Products</th>
<th>Pharma/Biotech</th>
<th>Pharma/Biotech</th>
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<tbody>
<tr>
<td>Top quartile</td>
<td>10</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>2nd quartile</td>
<td>8</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>3rd quartile</td>
<td>5</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Bottom quartile</td>
<td>3</td>
<td>15</td>
<td></td>
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</tbody>
</table>

Average: 7.0%  
Median: 5.8%  

Varian: 6-7%  
Elekta: 8-9%  
Accuray: 15-22%

Source: Lin J (2010); Businesswire (2012); ycharts.com (2012)
Seven Principles of Accountable Care

7. Pay for innovation when high-quality evidence development is conducted early in product lifecycle
Corollary: Explore differential reimbursement for treatment and coordination complexity*

- Illustrative

<table>
<thead>
<tr>
<th>Radiotherapy complexity</th>
<th>Care coordination complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\quad$</td>
<td>$\quad$</td>
</tr>
<tr>
<td>Lung or prostate stereotactic</td>
<td>Pediatric proton H&amp;N IMRT/proton CNS Proton</td>
</tr>
<tr>
<td>Combined modality protocols vary by disease site (Lung, GI, lymphoma)</td>
<td>CNS 3D/IMRT Pediatric 3D</td>
</tr>
<tr>
<td>$\quad$</td>
<td>$\quad$</td>
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<tr>
<td>Prostate proton Prostate 3D/IMRT Breast 3D/IMRT</td>
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*Evidence of value required
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