Reimbursement for Medical Radioisotopes in the United States

Mo99 Topical Meeting
Santa Fe, NM
December 4-7, 2011
Reimbursement for Medical Radioisotopes in the United States

I. Scale of Mo-99 Medical Usage
II. US Reimbursement Schemes
III. Medicare and Medicaid Reimbursement Mechanisms
IV. Impact of Alternate LEU Source
V. Strategies for Mitigation
VI. Conclusion
Scale of Mo-99 Medical Usage

• Order of magnitude *conservative* estimations
  – US Demand: 60% of world market
  – 80% Medical Use is Tc-99m Diagnostic Imaging
  – 30M doses per year at 1.5 doses per procedure
  – 120,000 generators per year
  – Average utilization 200 doses per 10 Ci generator
  – Expected dose 30 mCi
Scope of Tc-99m Usage

- 80% is SPECT imaging
- Myocardial Perfusion imaging 60%
- Bone scans
- Sentinel node detection
- Blood pool imaging
- Brain, GB, Renal, etc.
U.S. Reimbursement Schemes

Multi Payer System: Market Share

- Medicare
- Medicaid
- Commercial
- Other
US Reimbursement Schemes

• Medicare 21% Market Share SINGLE Payer
  – Prospective Payment Systems
• Medicaid 16% Market Share MANY Payers
  – Percent of Medicare, Percent of Charges
• Commercial 37% across MANY payers
  – Percent of Charges
• Other 26% Self pay, unpaid, VA, Tri-Care, etc.
  – Variable reimbursement
Medicare and Medicaid Reimbursement Mechanisms (IP)

• Inpatient Prospective Payment System
  – Inpatient Care
  – Large bundle
  – Diagnostic Related Groups
  – Average inpatient cost of stay for a given diagnosis
  – Not responsive to single elements
  – Updated annually (18 month average cost lag)
Medicare and Medicaid
Reimbursement Mechanisms (Office)

• Medicare Physician Fee Schedule
  – Office (or equivalent Testing Facility)
  – Fee schedule
  – CPT (procedure) code based
  – Set payment based on relative use of resources
  – Adjusted by Sustainable Growth Rate
  – Practice expense changes only when revalued
  – Example: 78452 Myocardial SPECT: $478 (2011)
Medicare and Medicaid Reimbursement Mechanisms (OP)

• Outpatient Prospective Payment System
  – Outpatient Care
  – Small bundle
  – Ambulatory Payment Classifications
  – Average cost of a service in a group of related procedures (hospital cost = purchase price)
  – Not responsive to small cost elements
  – Updated annually (18 month average cost lag)
  – Example: 78452 Myocardial SPECT: $760 (2011)
Impact of Alternate LEU Source

• Magnitude of Cost Change
  – Technology Impact
  – Subsidization Impact
  – Amortization Impact
  – Supply-Demand Impact

• Estimations of Cost Change
  – +10% (study)
  – +50% (with risk reserve)

• Healthcare System ability to absorb cost increases
Production cost

• Data
  – $225 per 6d Ci in 2008
  – $1900 per 10 Ci generator in 2005
  – $11.00 per 30mCi dose of Tc-99m in 2005, variation >20%

• Assumptions (2012)
  – $2500 per 10 Ci generator
  – $12.50 per dose +/- 20%
### Imaging APCs Payment Ranges

<table>
<thead>
<tr>
<th>CY 2012 APC</th>
<th>CY 2012 APC Title</th>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0308</td>
<td>Positron Emission Tomography (PET) Imaging</td>
<td>1042</td>
</tr>
<tr>
<td>0377</td>
<td><strong>Level II Cardiac Imaging.</strong></td>
<td>760</td>
</tr>
<tr>
<td>0378</td>
<td>Level II Pulmonary Imaging.</td>
<td>320</td>
</tr>
<tr>
<td>0389</td>
<td>Level I Non-imaging Nuclear Medicine.</td>
<td>101</td>
</tr>
<tr>
<td>0390</td>
<td>Level I Endocrine Imaging.</td>
<td>133</td>
</tr>
<tr>
<td>0391</td>
<td>Level II Endocrine Imaging.</td>
<td>219</td>
</tr>
<tr>
<td>0392</td>
<td>Level II Non-imaging Nuclear Medicine.</td>
<td>174</td>
</tr>
<tr>
<td>0393</td>
<td>Hematologic Processing &amp; Studies.</td>
<td>418</td>
</tr>
<tr>
<td>0394</td>
<td>Hepatobiliary Imaging.</td>
<td>265</td>
</tr>
<tr>
<td>0395</td>
<td>GI Tract Imaging.</td>
<td>239</td>
</tr>
<tr>
<td>0396</td>
<td>Bone Imaging.</td>
<td>244</td>
</tr>
<tr>
<td>0397</td>
<td>Vascular Imaging.</td>
<td>200</td>
</tr>
<tr>
<td>0398</td>
<td>Level I Cardiac Imaging.</td>
<td>291</td>
</tr>
<tr>
<td>0400</td>
<td>Hematopoietic Imaging.</td>
<td>257</td>
</tr>
<tr>
<td>0401</td>
<td>Level I Pulmonary Imaging.</td>
<td>197</td>
</tr>
<tr>
<td>0402</td>
<td>Level II Nervous System Imaging.</td>
<td>596</td>
</tr>
<tr>
<td>0403</td>
<td>Level I Nervous System Imaging.</td>
<td>240</td>
</tr>
<tr>
<td>0404</td>
<td>Renal and Genitourinary Studies.</td>
<td>321</td>
</tr>
<tr>
<td>0406</td>
<td>Level I Tumor/Infection Imaging.</td>
<td>290</td>
</tr>
<tr>
<td>0408</td>
<td>Level III Tumor/Infection Imaging.</td>
<td>825</td>
</tr>
<tr>
<td>0414</td>
<td>Level II Tumor/Infection Imaging.</td>
<td>475</td>
</tr>
</tbody>
</table>
## Cardiology II Payment Ranges

<table>
<thead>
<tr>
<th>Procedure Code</th>
<th>Procedure</th>
<th>Median Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>78451</td>
<td>Ht muscle image spect sing</td>
<td>$484.27</td>
</tr>
<tr>
<td>78454</td>
<td>Ht muscle image planar mult</td>
<td>$646.14</td>
</tr>
<tr>
<td>78453</td>
<td>Ht muscle image planar sing</td>
<td>$561.77</td>
</tr>
<tr>
<td><strong>78452</strong></td>
<td><strong>Ht muscle image spect mult</strong></td>
<td><strong>$681.23</strong></td>
</tr>
</tbody>
</table>
CPT 78452 Procedure Cost Ranges

Distribution of Hospital Reported Costs

0 $160 $342 $681 $1,020 $1,360 $1,699 $2,989
0 500 1000 1500 2000 2500 3000 3500

11/30/2011
Duvall HHS\CMS\HAPG
14
Payment Impact of 50% Price Increase

The graph illustrates the impact of a 50% price increase on various cost categories for HEU and LEU. The categories include:

- Tc-99 Dose
- Scan Cost - 1sd
- Scan Cost + 1sd
- Payment

The graph shows a comparison of costs before and after the price increase, indicating the financial implications of such an increase.

11/30/2011
Duvall HHS\CMS\HAPG

Page 15
Procedure Cost Related to Dose

HEU

LEU
Payment Adequacy vs. Payment Differential

Payment Adequacy
• Supported by Prospective Payment
  – Packaged
  – Separate
• Supported by % of charges
• Capital investment can be included in price
• Time lag irrelevant for single supplier

Payment Differential
• Not supported by Prospective Payment
  – No differential if packaged
  – No differential if separate
• Not supported by % of charges
• Requires direct cost reimbursement of individual supplier level costs
Strategies for Mitigation

• Remove Barriers to Entry
  – Cost
  – Lead time

• Insure ROI
  – Payment stability
  – Stable growth (4%/year)
  – Emerging markets (China)

• Decrease competitive disadvantage
  – Exposed cost (e.g. separate payment) removes cost control pressure
  – Does not remove competitive disadvantage unless differential payments exist for HEU and LEU sourcing
Strategies for Mitigation

Residual Risk:

• Price sensitive alternatives
  – PET, helical and high resolution CT, thallium, N-13,
• Technological stability (New alternative imaging)
  – Predictable incremental resolution improvement
  – Alternatives for cellular data transmission require breakthrough (unpredictable) improvement
  – Long investment horizon makes predictions tenuous
Conclusion

• US health care is reactive not proactive
• The Medicare payment system and US healthcare in general absorbs cost very well
• Cost differential is a more important issue than payment adequacy
• End user payments are not an ideal vehicle for mitigating the cost impact of different sources of a functionally identical product
• Total healthcare expenditures can be expected to continue to increase cost pressure which emphasizes cost differential