Operating Room versus Interventional Suite for Interventional Radiation Procedures: Cost-Effectiveness
SUMMARY OF ABSTRACTS

Operating Room versus Interventional Suite for Interventional Radiation Procedures

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Acknowledgments:

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.
Research Question

What is the cost-effectiveness of performing interventional radiation procedures in the operating room versus an interventional suite?

Key Findings

Four economic evaluations were identified regarding the use of the operating room compared to the interventional suite for interventional radiation procedures.

Methods

A limited literature search was conducted on PubMed, Ovid Medline, and as a focused Internet search. Methodological filters were applied to limit retrieval to economic studies. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2017 and November 8, 2017. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Patients undergoing interventional radiation procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Endovascular coiling of intracranial aneurysms</td>
</tr>
<tr>
<td></td>
<td>• Dural arteriovenous fistulae</td>
</tr>
<tr>
<td></td>
<td>• Preoperative embolization of spinal tumours</td>
</tr>
<tr>
<td></td>
<td>• Preoperative embolization of head and neck tumours</td>
</tr>
<tr>
<td></td>
<td>• Endovascular management of acute ischemic stroke (including possible stenting for extracranial stenosis)</td>
</tr>
<tr>
<td></td>
<td>• Gastrostomy, Gastrojejunostomy and Jejunostomy tube insertions</td>
</tr>
<tr>
<td></td>
<td>• IVC filters</td>
</tr>
<tr>
<td></td>
<td>• Peritoneal dialysis catheter insertions</td>
</tr>
<tr>
<td></td>
<td>• Port-a-cath insertions</td>
</tr>
<tr>
<td></td>
<td>• Tunnelled Hemodialysis line insertions</td>
</tr>
<tr>
<td></td>
<td>• Tunnelled PICC line insertions</td>
</tr>
</tbody>
</table>
Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Comparator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure performed in the operational suite</td>
<td>Procedure performed in the interventional suite</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Study Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>QALY, costs, cost per complication stay</td>
<td>Health technology assessments, systematic reviews, meta-analyses, economic evaluations</td>
</tr>
</tbody>
</table>

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by economic evaluations.

Four economic evaluations were identified regarding the use of the operating room compared to the interventional suite for interventional radiation procedures. No relevant health technology assessments, systematic reviews, or meta-analyses were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

Four economic evaluations were identified regarding the use of the operating room (OR) for interventional radiation procedures compared with the use of the interventional suite.1-4 The studies examined procedures including chest port insertion,1,3 iliac stenting,2 and the placement of Broviac catheters.4

In chest port insertion, the authors of one economic evaluation found the average charge for a chest port placement was over double the cost when performed in the OR compared to the outpatient clinic (€1270 versus €620).1 From a hospital perspective, the mean cost for chest port insertion in the OR was almost twice the cost of chest port insertion in the interventional suite, and the cost difference was significantly higher in the OR for both room and pharmacy costs.3

For iliac stenting, performance of the procedure in the OR was associated with higher total costs, however more severe cases were more likely to be performed in the OR.2 OR procedures more often used additional stents, thrombolysis, general anesthesia, a cut-down approach, had a longer procedure, and resulted in more ICU admissions, which were all associated with higher costs.2 However, after controlling for the severity of the individual case, the differences in cost disappeared, with the exception of higher OR professional fees when compared with the interventional suite.2

Finally, the overall cost of implanting a Broviac catheter in children were significantly lower when performed by pediatric intensivists in a sedation suite compared with the placement by a pediatric surgeon in the OR.4
References Summarized

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Economic Evaluations


Appendix — Further Information

Previous CADTH Reports

5. Surgical interventions performed outside the hospital room [Internet]. Ottawa: CADTH; 2015 Jul 8. [cited 2017 Nov 21]. (Environmental scan; no.49). Available from: https://www.cadth.ca/surgical-interventions-performed-outside-hospital-operating-room

Economic Evaluations – Alternative Intervention


Case Study


Review Articles

11. Eder SP, Register JL. 10 management considerations for implementing an endovascular hybrid OR. AORN J. 2014 Sep;100(3):260-70. PubMed: PM25172561