The cost of major trauma care to DHBs

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Northland District Health board
Outline

• Current data on trauma costs

• Funding and costing in New Zealand

• Cost of major trauma in Northland
Why?

- Increased scrutiny in public health funding
- Competing demands
- Cost improvement
Current literature

• High income countries

• 2 Systematic reviews
  – 1 focused on worldwide costs
  – 1 focused on cost drivers

• Queensland data
Current literature

- 27 Studies
- 20 Reported on major trauma
- Variability in methodology
# Current literature

<table>
<thead>
<tr>
<th>Country</th>
<th>Articles</th>
<th>Median US $ Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>1</td>
<td>95,380</td>
</tr>
<tr>
<td>Germany</td>
<td>3</td>
<td>41,522</td>
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<tr>
<td>Australia</td>
<td>2</td>
<td>33,130</td>
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<td>USA</td>
<td>16</td>
<td>22,115</td>
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<td>UK</td>
<td>3</td>
<td>18,535</td>
</tr>
<tr>
<td>Canada</td>
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<td>8,196</td>
</tr>
</tbody>
</table>
Current literature

![Graph showing acute trauma treatment costs per subgroup.](image)

Figure 2 Acute trauma treatment costs per subgroup.
Current literature

- Adult polytrauma

- Cost drivers
  - ICU
  - Operative intervention
  - Injury severity
Current literature

- 17,500 Patients
- 2000 Major trauma
- Mean cost $28,584
## Current literature

<table>
<thead>
<tr>
<th>ISS</th>
<th>n</th>
<th>%</th>
<th>Median Cost</th>
<th>Total Cost</th>
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<tbody>
<tr>
<td>&lt;9</td>
<td>9788</td>
<td>68</td>
<td>3510</td>
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<td>9-12</td>
<td>2401</td>
<td>17</td>
<td>9704</td>
<td>33,630,296</td>
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<td>13-15</td>
<td>376</td>
<td>3</td>
<td>9082</td>
<td>5,025,241</td>
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<td>16-24</td>
<td>973</td>
<td>7</td>
<td>11,813</td>
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<td>25-39</td>
<td>689</td>
<td>5</td>
<td>17,934</td>
<td>28,620,365</td>
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<td>40-75</td>
<td>104</td>
<td>1</td>
<td>15,876</td>
<td>4,708,848</td>
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</table>
Current literature

- Comparing coding costs and actual costs
- $134/day
- $14.5m dollars
Take home messages

1. Variation in costs around the world
2. Discrepancy actual costs and coding
3. Consistent cost drivers
Funding and costing in NZ

- Funding system
- Costing systems
Funding of healthcare in NZ

- Vote health $16.7 Billion
- ACC $4 Billion
- Private healthcare
Funding of healthcare NZ

- Population based funding formula

- ACC
  - Block funding
  - Claims
Costing of Healthcare in NZ

• Diagnosis related groups
  • Codes
  • Average costs

• Actual costs
  • NZ common costings standard
  • Costs each part of care
Northland Costs Study

- Aim
  - Assess actual costs
  - Factors influencing costs
  - Compare actual and DRG costs
Northland Costs Study

- Methods
  - 2 years
  - Major trauma
    - ISS > 12
    - ICU Admission
    - Death

  - Excluded transfers within 24 hours
Northland Costs Study

- Results
  - 199 patients
  - Median age 45
  - M:F 2.4:1
  - 33% of patients identified as Maori
  - 15% Outside Northland
Northland Costs Study

• 183 patients ISS>112

• Median ISS 18

• Median LOS 8.5 days

• Mortality 12.5%
Northland Costs Study

• Actual Costs
  – Overall cost $4.6 million
  – Mean $23 000

• DRG costs
  – Overall cost $3.39 million
  – Mean $17 000
# Northland Costs Study

<table>
<thead>
<tr>
<th>ISS group</th>
<th>n</th>
<th>(LOS) (Days)</th>
<th>Mean actual cost (NZ$)</th>
<th>Mean case-weight cost (NZ$)</th>
<th>Mean deviation from case-weight cost (NZ$)</th>
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<tbody>
<tr>
<td>&lt;13</td>
<td>16</td>
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<td>$24,629</td>
<td>$15,605</td>
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<td>13-24</td>
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<td>$9,379</td>
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<td>$275</td>
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# Northland Costs Study

<table>
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<tr>
<th>Intervention</th>
<th>Ave. LOS (Days)</th>
<th>Mean ISS (IQR)</th>
<th>Mean actual cost (NZ$)</th>
<th>Mean case-weight cost (NZ$)</th>
<th>Mean deviation from case-weight cost (NZ$)</th>
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<tr>
<td>ICU</td>
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<tr>
<td>Operation</td>
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<td>18.8 (14-22)</td>
<td>$38,839</td>
<td>$28,066</td>
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<td>6.2</td>
<td>17.9 (13-21)</td>
<td>$14,508</td>
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Northland Costs study

- Mean cost $23 000
- Actual and DRG costs
- Cost drivers as per previous studies
Conclusions

• Understanding costs is important

• Body of literature on costs of trauma

• Need to expand NZ cost data………..
Questions?