Engaging senior clinicians to reduce costs of elective surgery

Presenter(s): Dr John Cullen FRACS, Director, Elective Surgery Centre, Dr Dale Bramley CEO, Waitemata DHB, Delwyn Armstrong
KEY PROBLEM

- Elective surgery in NZ is provided through the private sector which drives productivity but not efficiency or
- The public sector, which drives neither
- Alternative contractual arrangement between funders and providers is required for productivity and efficiency gains.
AIMS: HIP AND KNEE REPLACEMENT PILOT

- Senior clinicians and managers will agree to share risk and rewards under an ‘alliance contracting’ model
- A type of collaborative contract that relies on a trusting relationship between contract partners
- Purpose to align commercial incentives so funder and supplier are working towards a common goal
- In NZ, this model works well because of:
  1. Ministry defined volumes (cannot over-service)
  2. A defined national price (cannot over-charge)
AIMS OF PILOT

Specific aims under alliance contracting model:

- Increase theatre throughput for hip and knee replacement surgery to 4 per operating day, compared to 3 or fewer
- Reduce length of stay
- Reduce overall inpatient stay costs
- Provide an improved patient experience through closer Senior Medical Officer involvement in care

The Health Roundtable
KEY CHANGES IMPLEMENTED

Under the Alliance Contract, a model of service delivery was implemented with these features:

- **Specific surgeon-anaesthetist teams**, accountable for driving the overall theatre throughput.

- Consultants were paid a ‘**package of care**’ fee for their service. This incentivised them to reduce theatre time per operation, consumable costs and length of stay.

- Senior Medical Officers provided all necessary medical care during the inpatient admission. Therefore, ward **nurses had direct access to the senior medical staff** for post-operative care.

- **Nurses** were up-skilled as **the main theatre assistants**

- Patients with similar procedures were **cohorted** on theatre lists and then in the same four-bed room on the ward
OUTCOMES SO FAR

- Study\(^1\) comparing similarly presenting, non-complex patients at main hospital found significant reduction in theatre time and length of stay.

<table>
<thead>
<tr>
<th></th>
<th>Hip Replacements</th>
<th>Knee Replacements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pilot</td>
<td>NSH</td>
</tr>
<tr>
<td>(n = 100)</td>
<td>(n = 77)</td>
<td>(n = 70)</td>
</tr>
<tr>
<td>Time in Theatre</td>
<td>104</td>
<td>166</td>
</tr>
<tr>
<td>Length of stay (days, mean)</td>
<td>3.3</td>
<td>5.2</td>
</tr>
</tbody>
</table>

\(^1\) Results published: Cullen J et al. Increasing productivity, reducing cost and improving quality in Elective Surgery in New Zealand – the Waitemata DHB joint arthroplasty pilot. Internal Medicine Journal 2012, 42(6): 620-626
OUTCOMES SO FAR

- Reduction in theatre, ward and overall costs compared to standard care at main hospital

| Cost/revenue group | Hip replacements | Knee replacements | P-value
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot</td>
<td>NSH</td>
<td>Pilot</td>
<td>NSH</td>
</tr>
<tr>
<td>n = 100</td>
<td>n = 77</td>
<td>n = 70</td>
<td>n = 88</td>
</tr>
</tbody>
</table>

**COSTS – mean (SD)**

- Surgeon (and RMO) time
  - 2200 (0) vs 1579 (452), <0.0001 vs 2225 (149) vs 1754 (442), <0.0001
- Anaesthetist time – surgery
  - 1200 (0) vs 1219 (223), 0.396 vs 1200 (0) vs 1295 (230), 0.000
- Anaesthetic pre admit
  - 171 (183) vs 218 (180), 0.093 vs 179 (186) vs 256 (168), 0.007
- Theatre
  - 2321 (639) vs 3828 (668), <0.0001 vs 2336 (581) vs 4057 (657), <0.0001
- Implant
  - 5361 (0) vs 5361 (0), - vs 4649 (0) vs 4649 (0), -
- Ward
  - 1324 (318) vs 1860 (855), <0.0001 vs 1387 (379) vs 2103 (842), <0.0001
- **OTHER**
  - 1181 (251) vs 1369 (1439), 0.201 vs 1090 (340) vs 1550 (1709), 0.028

**Total Cost**

- 13758 (792) vs 15434 (2397), <0.0001 vs 13667 (932) vs 15664 (2999), <0.0001

The Health Roundtable

- 12% lower
- 17% lower
LESSONS LEARNT

- Simple but radical changes in process will always meet with resistance
- Changes can be successful with cooperation and trust between all stakeholders
- An increase in productivity and efficiency can be achieved in the provision of elective surgery by changing employment contracts for surgeons and anaesthetists