Pharmaceutical data analysis at PHARMAC

Jason Arnold
PHARMAC’s statutory objective

To secure for eligible people in need of pharmaceuticals, the **best** health outcomes that are reasonably achievable from pharmaceutical treatment and from within the amount of funding provided.
What PHARMAC is and isn’t

PHARMAC isn’t a…
- Medicine supplier (pharmaceutical companies)
- Fund holder (DHBs hold the budget)
- Regulator or safety agency (Medsafe)
- Supply chain (pharmacists and pharmacy wholesalers)

PHARMAC is the…
- Subsidy agency
- National contract negotiator and contract manager
- Budget manager
Types of epidemiology / data analysis
New Zealand use of statins and fibrates

1991 SA criteria A1:1-2, A2 > 7.0, other A and B-E tc > 9.0 mmol/l
1997 SA criteria A1.1 A1.3-4, A2, A3 > 6.0, A1.2 > 5.5, B-E tc > 9.0 mmol/l

no. eligible for statins
fibrates
statins

A1:1, A1:3-4, A2, A3 > 6.0,
A1:2 > 5.5,
B-E tc > 9.0 mmol/l

April 2002 open access to

288,702

newzealand.govt.nz
Southern DHB -
Number of Patients (by age) First Dispensed Oxycodone or Morphine in General Practice or Hospital
Based on community dispensings in the 2011 calendar year
Adalimumab patients by Indication

- Y-axis: Patients
- X-axis: Years (2006-2014)
- Indications:
  - juvenile idiopathic arthritis
  - fistulising Crohn's disease
  - severe chronic plaque psoriasis
  - psoriatic arthritis
  - ankylosing spondylitis
  - Crohn's disease
  - rheumatoid arthritis

The graph shows a steady increase in patients from 2006 to 2014, with the highest number of patients in 2014.
Dabigatran and warfarin dispensings on the same day

<table>
<thead>
<tr>
<th></th>
<th>Unique Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day - different prescription</td>
<td>162</td>
</tr>
<tr>
<td>Same prescription - same day</td>
<td>72</td>
</tr>
<tr>
<td>Same prescription - Diff day</td>
<td>16</td>
</tr>
<tr>
<td>Total co-prescribed</td>
<td>250</td>
</tr>
</tbody>
</table>

Co-prescribing of warfarin and dabigatran on the same day
For period July to Sept 2010.
Closing Thoughts…

• Large amounts of people specific data to work with;
• Some information not readily available eg. doctor speciality/place, lab results, special authority criteria, indication;
• Only subsidised dispensing data available. No OTC data or private markets. May also have issues with data completeness when co-payments change;
• Research benefits to PHARMAC? Linkage to best health outcomes.
Further detail - publications
Some PHARMAC publications in pharmacoepidemiology


Funding community medicines by exception: a descriptive epidemiological study from New Zealand, NZMJ 2012 http://journal.nzma.org.nz/journal/125-1350/5071


Usage and equity of access to isotretinoin in New Zealand by deprivation and ethnicity, NZMJ 2011 http://journal.nzma.org.nz/journal/124-1346/4967/


Extra slides
ICS ADDs overall

GSK Flixotide campaign start
Demand Side campaign launch

target ADD 839-938 mcg BAEDD by Feb'04

pre-campaign actuals
counterfactual
post campaign actuals

[Graph showing BAEDD (mcg) with target 5-15% reduction by Feb'04, pre-campaign and post campaign actuals, and projected data.]
Overall ICS and SABA patients per capita for Australia and New Zealand

- Australia total ICS incl LABA combinations
- Australia SABA/anticholinergics
- NZ total ICS incl LABA combinations
- NZ SABA/anticholinergics

no. dispensings per 100,000 population

month


newzealand.govt.nz
ICS average daily doses NZ vs Australia

**children <12yrs 500ug BEDD, adults/adol 12+yrs 1000ug BEDD, child/adult mix NZ 1999-2002

*BEDD = BDP-equivalent daily dose (where fluticasone has twice potency of BDP or budesonide);

**estimated Australian ADDs apply ratios of NZ actual/putative ADDs to Australian putative ADDs, where putative ADDs presume TT bd for budesonide/BDP/Flixotide, TT bd for Seretide MDI, T bd for Seretide DPI; fluticasone overall estimate combines estimated ADD for Flixotide with putative ADD for Seretide; no NZ Seretide actual/putative ADD calculations available, and assume standard dosage for Seretide because of LABA component.
Slides not used
Draft guidelines for PHARMACs involvement in research

<table>
<thead>
<tr>
<th>Public Good</th>
<th>Relevance to PHARMAC</th>
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<tbody>
<tr>
<td>Low</td>
<td>Not supported</td>
</tr>
<tr>
<td>High</td>
<td>Support external research</td>
</tr>
<tr>
<td></td>
<td>Undertake own research</td>
</tr>
<tr>
<td></td>
<td>Work collaboratively on Research</td>
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</tbody>
</table>
3.4 million 
NUMBER of NEW ZEALANDERS RECEIVING FUNDED MEDICINES

31
NUMBER OF MEDICINES WITH ACCESS WIDENED

$783.6 million
YEARLY DHBs' COMBINED PHARMACEUTICAL EXPENDITURE (ON BUDGET)

$56.5 million
AMOUNT OF SAVINGS ACHIEVED

12
NUMBER OF VACCINES INCLUDED WITHIN THE CPB

52,398
ESTIMATED NUMBER OF ADDITIONAL PATIENTS BENEFITING FROM THESE DECISIONS IN A FULL YEAR

42.2 million
NUMBER OF PRESCRIPTIONS FUNDED
DHB Comparison of Oxycodone and Morphine Prescription Rates
(2013 Calendar Year)

Age Standardised Prescriptions per 1000 Population

- Morphine
- Oxycodone

newzealand.govt.nz