Forecasting Drug Costs
CPBI National Webinar Series
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Great-West Life
Toronto, Ontario
Agenda

- Review past, present and future of Canadian drug spending and utilization
- Investigate some of the drivers that lead to drug cost increases and decreases for employer sponsored drug plans
- Provide an outlook for the future
Canadian drug coverage

32 million Canadians – 23 million (72%) rely on insured drug plans

- 22.4 million with group insurance
- 762,000 with individual insurance

*Canadian Life and Health Insurance Association (CLHIA)*
Canadian Rx drug spending 2013

Sales ($)

- 23.5% Generic
- 76.5% Brand

22.2 Billion Dollars

Number of Claims (#)

- 34.0% Generic
- 66.0% Brand

574 Million Prescriptions

Source: IMS Brogan
Total Canadian market purchases

Source: IMS Brogan - Canadian Pharmaceutical Industry Review
# Telus Key Results - Pay Direct Drug Card plans under 65

<table>
<thead>
<tr>
<th></th>
<th>Canada</th>
<th>Quebec</th>
<th>Ontario</th>
<th>Atlantic</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual eligible cost</td>
<td>$948</td>
<td>$935</td>
<td>$1,046</td>
<td>$1,099</td>
<td>$1,083</td>
</tr>
<tr>
<td>per cardholder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average eligible cost per</td>
<td>$65.13</td>
<td>$65.18</td>
<td>$52.16</td>
<td>$52.71</td>
<td>$71.83</td>
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<tr>
<td>prescription</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average annual number of</td>
<td>14.5</td>
<td>14.4</td>
<td>20.0</td>
<td>20.9</td>
<td>15.1</td>
</tr>
<tr>
<td>prescriptions per cardholder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of prescriptions filled</td>
<td>56%</td>
<td>58%</td>
<td>51%</td>
<td>54%</td>
<td>58%</td>
</tr>
<tr>
<td>with generic drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average age</td>
<td>41.3</td>
<td>41.5</td>
<td>39.3</td>
<td>40.3</td>
<td>43.0</td>
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</table>
What factors are driving costs?

**Downward pressure:**
- Patent cliff allows for genericization of major products
- Generic drug price decreases for top-selling generics

**Upward pressure:**
- Generic drug price increases for low-selling generics
- More high-cost drugs entering the market
- Changes in prescribing guidelines
- New indications for drugs
- Shifts in prescribing towards newer therapies
Downward pressure
Generic price reforms

Provincial Generic Price Summary as of April 2014

Generic Price Relative to Brand

<table>
<thead>
<tr>
<th>Province</th>
<th>Price Relative</th>
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</thead>
<tbody>
<tr>
<td>BC</td>
<td>20%</td>
</tr>
<tr>
<td>AB</td>
<td>18%</td>
</tr>
<tr>
<td>SK</td>
<td>35%</td>
</tr>
<tr>
<td>ON</td>
<td>25%</td>
</tr>
<tr>
<td>QC</td>
<td>25%</td>
</tr>
<tr>
<td>NB</td>
<td>25%</td>
</tr>
<tr>
<td>NS</td>
<td>35%</td>
</tr>
<tr>
<td>PE</td>
<td>35%</td>
</tr>
<tr>
<td>NL</td>
<td>25%</td>
</tr>
</tbody>
</table>

10 top generics are 18% of brand

Source: IMS Brogan

1QC not yet lowered for the four generics added Apr 2014; 2When four or more manufacturers
Downward pressure
Generic price reforms

Average Cost per Claim, Generics
Private Drug Plans, Select Provinces, Jan 2012 to Nov 2013

Source: IMS Brogan Private Drug Plans Database
# Upward pressure

**Generic price increases**

*Exemptions from price reform December 2014*

<table>
<thead>
<tr>
<th>Province</th>
<th>Drug name</th>
<th>Drug use</th>
<th>Old price</th>
<th>New price</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC</td>
<td>Cefepime</td>
<td>Antibiotic</td>
<td>$251.15</td>
<td>$301.96</td>
<td>20.2%</td>
</tr>
<tr>
<td></td>
<td>Flutamide</td>
<td>Prostate cancer</td>
<td>$135.30</td>
<td>$182.55</td>
<td>34.9%</td>
</tr>
<tr>
<td>AB</td>
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<td>Antibiotic</td>
<td>$251.15</td>
<td>$301.96</td>
<td>20.2%</td>
</tr>
<tr>
<td></td>
<td>Enalapril</td>
<td>Blood pressure</td>
<td>$77.12</td>
<td>$107.41</td>
<td>39.3%</td>
</tr>
<tr>
<td></td>
<td>Cimetidine</td>
<td>Stomach acid</td>
<td>$8.60</td>
<td>$32.84</td>
<td>281.9%</td>
</tr>
<tr>
<td></td>
<td>Doxepin</td>
<td>Depression</td>
<td>$39.16</td>
<td>$80.66</td>
<td>106.0%</td>
</tr>
<tr>
<td></td>
<td>Ibuprofen</td>
<td>Inflammation</td>
<td>$46.80</td>
<td>$93.60</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Valproic</td>
<td>Convulsions</td>
<td>$17.91</td>
<td>$27.23</td>
<td>52.0%</td>
</tr>
<tr>
<td></td>
<td>Prazosin</td>
<td>Blood pressure</td>
<td>$25.60</td>
<td>$51.21</td>
<td>100.0%</td>
</tr>
<tr>
<td>QC</td>
<td>Bomazepam</td>
<td>Anxiety</td>
<td>$6.93</td>
<td>$10.28</td>
<td>48.3%</td>
</tr>
<tr>
<td>NF</td>
<td>Cefepime</td>
<td>Antibiotic</td>
<td>$251.15</td>
<td>$301.96</td>
<td>20.2%</td>
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<td>Stomach acid</td>
<td>$8.60</td>
<td>$32.84</td>
<td>281.9%</td>
</tr>
<tr>
<td></td>
<td>Lithium</td>
<td>Mental disorders</td>
<td>$44.30</td>
<td>$65.70</td>
<td>48.3%</td>
</tr>
<tr>
<td></td>
<td>Trazodone</td>
<td>Depression</td>
<td>$20.35</td>
<td>$46.13</td>
<td>126.7%</td>
</tr>
<tr>
<td>PEI</td>
<td>Cefepime</td>
<td>Antibiotic</td>
<td>$251.15</td>
<td>$301.96</td>
<td>20.2%</td>
</tr>
</tbody>
</table>

Source: Apotex drug price updates
Upward pressure
More biologics entering the market
### Upward pressure

Changes in prescribing guidelines

#### Canadian Diabetes Association

Clinical Practice Guidelines

<table>
<thead>
<tr>
<th>Timely adjustments to, and/or additions of, antihyperglycemic agents should be made to attain target glycated hemoglobin (A1C) within:</th>
<th>2008 Guidelines</th>
<th>2013 Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥9.0%</td>
<td>6-12 months</td>
<td>6 months</td>
</tr>
<tr>
<td>≥8.5%</td>
<td>6 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>

Antihyperglycemic agents should be started along with lifestyle management, and consideration should be given to starting combination therapy with 2 agents, 1 of which may be insulin when A1C is:
# Remicade

## Number of Canadians Impacted

<table>
<thead>
<tr>
<th>Remicade</th>
<th>Number of Canadians Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Indication</td>
<td></td>
</tr>
<tr>
<td>Crohn’s Disease</td>
<td>130,000</td>
</tr>
<tr>
<td>Expanded Indication</td>
<td></td>
</tr>
<tr>
<td>Ulcerative Colitis</td>
<td>88,500</td>
</tr>
<tr>
<td>Rheumatoid Arthritis</td>
<td>300,000</td>
</tr>
<tr>
<td>Ankylosing Spondolitis</td>
<td>300,000</td>
</tr>
<tr>
<td>Psoriatic Arthritis</td>
<td>250,000</td>
</tr>
<tr>
<td>Plaque Psoriasis</td>
<td>470,000</td>
</tr>
<tr>
<td>Lupus*</td>
<td>50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,588,500</strong></td>
</tr>
</tbody>
</table>

*Off-label use

Source: CLHIA REPORT ON PRESCRIPTION DRUG POLICY
Upward pressure
Shifts in prescribing towards newer drugs

• Doctor can prescribe Brand A or B with same outcome for most patients
  
• Lower cost choices are available for most medical conditions but physicians often don’t prescribe them

• This is often due to influence by pharmaceutical manufacturers
Upward pressure
Shifts in prescribing towards newer drugs

**Top down**
Most expensive drug to least expensive drug

**Bottom up**
Least expensive drug to most expensive drug

Doctors often don’t know which drug will work for you until you try it.
Future Outlook
Drug Pipeline Canada – Top 10 Disease States

Number of Drugs in Phase III Development or above

- Diabetes: 6
- Hepatitis: 6
- Central Nervous System: 8
- Psoriasis: 8
- Blood Disorders: 9
- Gastrointestinal: 9
- Anti-Infectives: 10
- Respiratory Ailments: 11
- Cardiovascular: 12
- Cancer and Immune System: 46

Total 125 drugs

Source: IMS Brogan Feb 2014
PCSK9 – biologic for cholesterol on the way?

PCSK9 - Proprotein Convertase Subtilisin/Kexin type 9
  • A gene that regulates the body's LDL receptors, overseeing the process by which the liver cleans bad cholesterol out of the blood
  • Overactive genes facilitate proliferation of bad (LDL) cholesterol

First PCSK9 inhibitors - evolocumab submitted to FDA in August 2014
  • Injectable antibody (i.e., biologic), administered every 2-4 weeks
  • For the 3-4% of patients who fail to respond favorably to conventional therapy

• Early suggestions are $10k/year treatment cost
When are key products coming off patent in Canada?

*Remicade and Orecia patents not listed in patent register
Loss of exclusivity

• A significant number of biologics could lose patent protection in the next 3 years

• Manufacturers may mitigate patent lost by introducing new administration modes of available drugs
  • Orencia SC, Simponi SC

• Subsequent Entry Biologics
Subsequent Entry Biologics

- A second-to-market biologic

- Not “generic” biologics, main differences are:
  - Require clinical trials
  - Manufacturing process
  - Complexity in structure
  - Authorization process
  - Prescribing

- Biosimilar, not Bioequivalent
Subsequent Entry Biologics

Health Canada

• Authorization of an SEB is not a declaration of:
  • pharmaceutical or therapeutic equivalence to the reference biologic drug
  • Inter-changeability/substitutability

Inflectra (biosimilar to Remicade) now approved in Canada for certain conditions

• Janssen reaction – agreements with private drug plans
Hepatitis C

Why and how this will impact private plans
Hepatitis C virus

What is Hepatitis C?

- Hepatitis C is a virus that harms the liver
- Transmitted from person to person through contact with blood
- Slow disease progression
- Leading cause of liver transplantation
Hepatitis C: The disease

What are the symptoms?
- Feeling tired or weak
- Lack of hunger
- Nausea
- Muscle or joint aches
- Weight loss
Hepatitis C in Canada

Hepatitis C is common
  • Exact prevalence unknown
  • Estimates of over 300,000*

Awareness of disease
  • Less than half are aware of diagnosis

* Source: Canadian Liver Foundation
Modeled prevalence of hepatitis C in Canada

Source: Public Health Agency of Canada (for details see full publication)
Patients treated for hepatitis C by year in Canada

Source: IMS Brogan Inc.
Recommended screening

USA: Center for Disease Control
• Screening for all born between 1945 and 1965

Public Health Agency of Canada
• Screening for those with risk factors such as injection drug use and immigration from high-risk countries

Canadian Liver Foundation recommendation
• Screen all born between 1945 and 1975

What is the outcome of baby boomer screening?
• Large increase of Hepatitis C patients seeking treatment
# New Hepatitis C treatments

<table>
<thead>
<tr>
<th>Brand Name (chemical name)</th>
<th>Other drugs used in combination</th>
<th>Length of Treatment</th>
<th>Estimated total treatment cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galexos (Simeprevir)</td>
<td>Ribavirin and interferon</td>
<td>12 weeks Triple therapy. Additional 36 weeks of Ribavirin and Peginterferon alfa</td>
<td>$53,000 – $64,000</td>
</tr>
<tr>
<td>Sovaldi (Sofosbuvir)</td>
<td>Ribavirin +/- interferon</td>
<td>12 – 24 weeks</td>
<td>$67,000 - $135,000</td>
</tr>
</tbody>
</table>
| Harvoni (Ledipasvir/Sofosbuvir) | None                           | 8, 12 or 24 weeks | $51,000  
|                             |                                 |                     | $72,000  
|                             |                                 |                     | $154,000  |
| Holkira Pak (Ombitasvir/Paritaprevir/Ritonavir and Dasabuvir) | +/- Ribavirin                   | 12 – 24 weeks       | $64,000 - $128,000 |
Costs associated with not treating

**End stage liver disease**
- Physiotherapy
- Mobility aids
- Medications for complications

**Transplant**
- Anti-rejections drugs $$$
- Treatment of recurrent HCV

**Workplace Productivity**
- HCV-infected workers had 4.15 more days of absence per employee
  \(^1\)
- Productivity was measured by units of work processed per hour; employees with HCV processed 7.5% fewer units per hour than employees without HCV
  \(^1\)
- HCV Patients had more work impairment (30% vs. 18%) and more impairment in non-work activities (34% vs. 28%)
  \(^2\)

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2. Vietri et al. The burden of hepatitis C in Europe from the patients’ perspective: a survey in 5 countries. BMC Gastroenterology 2013, 13:16
Hepatitis C treatment

• Hepatitis C is a major focus of the pharmaceutical industry

• Increased screening for Hepatitis C for baby boomers will create large surge of plan members seeking treatment
Key takeaways

- The patent cliff will end reducing the opportunity to lower costs through generic drugs and bringing drug trends back in line with historical patterns
- Drug pipeline has a large percentage of high cost specialty drugs
- Subsequent Entry Biologics are here but may not offer cost savings
- Hepatitis C will dominate drug plan spending in near future
- Trend is on the rise and drug plan sustainability is an issue
Questions?