Bending the Cost Curve – In the Right Direction!

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UBC
Costs Increasing Faster than Government Revenue

Figure 36: Provincial/Territorial Government Revenue and Health Expenditure, Constant Dollar Indices (1993 = 100), Canada, 1993 to 2010

Note
FMS data is estimated for 2009.

Sources
National Health Expenditure Database, Canadian Institute for Health Information; Financial Management System, Statistics Canada.
All OECD Countries Have Experienced Sustained Cost Escalation

- Since 1960, spending has grown by 2% over GDP in all OECD countries
- If trend continues, by 2050 most OECD countries will spend 20%+ on health
- By 2080, Switzerland and U.S. will spend 50% of GDP
- Represents massive transfer from young taxpayers to older health care users
Exhibit 3: Health care outstripped GDP

Health care spending as % of GDP

United States
GDP +2.5

OECD\(^1\) quartiles excluding
United States
Median GDP +2.0

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\(^2\) Organisation for Economic Co-operation and Development; data reflect fluctuating number of member countries—e.g., 13 countries in 1960, 30 in 2004.

Source: OECD; McKinsey analysis
Exhibit 4: Two scenarios for future spending

Projected health care spending as % of GDP for member countries of OECD

<table>
<thead>
<tr>
<th>Half of OECD’s historic rate: GDP +1%</th>
<th>OECD’s historic rate: GDP +2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2030</td>
</tr>
<tr>
<td>United States</td>
<td>Switzerland</td>
</tr>
</tbody>
</table>

1 Organisation for Economic Co-operation and Development; forecasts assume real GDP growth of 2%, with health care spending growing at 1 or 2 percentage points above that.

Hospitals’ Share of Spending Has Gone Down

Figure 15: Hospitals’ Share of Total Provincial/Territorial Government Health Expenditure and Total Health Expenditure, Canada, 1975 to 2010

Note
See tables C.1.2 and C.4.2.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
Consumer Disconnected from Payer

Patients
Want improvements in life expectancy and functionality

Taxpayers
Want greater system efficiencies/lower costs

High Quality Care
A Sustainable System
Bending the Cost Curve

Sustainably

Defined as:

Series of actions which make the expected *gap* between health care spending and real economic growth *smaller* twenty years from now.
Bending the Cost Curve

• Past Experience
  - Cost ‘Cutting’
  - Suppressing (and Bounce back)
  - Short term expenses (vs investment for longer term (infrastructure, training))
  - *Permanent elimination of costs* *(sustainability)*
Innovation – The solution?

“We need to adopt more innovative technologies, processes, and procedures so we can preserve and grow the Canadian public health system”.

Dr. Kellie Leitch
“The development and diffusion of medical technology is one of the primary factors in why health spending is outstripping general economic growth.

Some argue new medical technology may account for one-half of real long-term spending growth in health.”

- Kaiser Permanente
A Success: Greater Life Expectancy

Population Section, BC Stats (2006 Census Data)
Innovation in HealthCare

• Most frequently – **Technology**
  - Devices (Diagnostics, Surgical, Monitoring)
  - Drugs
  - Information
Innovation in HealthCare

• Most frequently – **Technology**
  - Devices (Diagnostics, Surgical, Monitoring)
  - Drugs
  - Information
  - Process Redesign (LEAN)
Innovation in HealthCare

• Most frequently – **Technology**
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  - Drugs
  - Information
  - Process Redesign (LEAN)
  - System Redesign
Vision for Change

- Integrated continuum of care
- Chronic disease management
- Shift from acute care to home
- Appropriate funding models and incentives
- Engaged, health conscious consumer
- Value based, not volume based
- Belief in quality and cost effectiveness
Innovation – Opportunities

- Personalized Medicine – Precision Medicine
- Mobile Medicine
- PHR, e-Health
Mobile Health (m-Health) is the biggest technology breakthrough of our time being used to address our greatest national challenge.

Kathleen Sebelius,
U.S. Health and Human Services Secretary
Learning from the Developing World

“Innovators around the globe have demonstrated effective new ways to reach and interact with patients and treat them at significantly lower cost while improving quality.”

McKinsey Study
Innovation Success Factors in Developing Countries

- Low cost – consumers must pay directly
- Simple
- Close to the patient – point of care delivery
- Use existing technology to re-invent delivery
- Right skill the workforce
- Standardize operating procedures
- Copy - build
Developing Countries – Business Model for Innovation

• “Frugal innovations” – solutions that deliver superior value at a fraction of the costs typically seen in developed countries
• New technologies to work within integrated continuum of care
• End to end disease solutions – owning a disease
System Change

• Barriers to innovation often systemic
• ‘Whole-system’ view
• Healthcare system – complex, adaptive system
• Change management also complex
Attitude

• In complex adaptive systems, alignment is challenging
• To preserve Canadian public health system, players must work together to institute necessary change
Per Capita Health Expenditures

Figure 3: Total Health Expenditure per Capita, Canada, 1975 to 2010

Note
See Table A.1.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
Health Expenditures – Where Does the Money Go

Figure 13: Total Health Expenditure, Selected Use of Funds, Canada, 1975 to 2010

- Hospitals
- Physicians
- Drugs
- Forecast

Note:
See Table C.1.1.

Source:
National Health Expenditure Database, Canadian Institute for Health Information.
Health Expenditure Per Capita and By Age

Figure 32: Total Provincial/Territorial Government Health Expenditure per Capita, by Age and Sex, Canada, 2008

Note
See Table E.1.11.
Sources
National Health Expenditure Database, Canadian Institute for Health Information; Population, Statistics Canada.
Hospital Expenditure by Age

Figure 27: Provincial/Territorial Government Hospital Expenditure, by Age and Sex, Canada, 2008

Note
See Table E.2.13.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
**EXHIBIT 5**

**Where does the money go?**

Projected 2014 out-of-pocket health care expenses for US retirees, by service category

**Expected, %**

- Nursing home: 12%
- Hospital care: 16%
- Physician services: 6%
- Dental services: 7%
- Prescription drugs: 58%

100% = $3,588

**Catastrophic, %**

- Nursing home: 43%
- Hospital care: 26%
- Physician services: 8%
- Dental services: 4%
- Prescription drugs: 17%
- Others: 2%

100% = $49,285

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1 Includes impact of Part D in catastrophic drug spending.
2 Includes hospice services, medical products, other professional services.

Source: Centers for Medicare and Medicaid Services (CMS) national health care expenditures; University of Michigan Health and Retirement Survey, 2002; McKinsey analysis
The Challenge to Sustainability

Balance health needs with resource availability
The Supply-Demand Model

Supply
- Costs
- Access

Demand
- Ageing
- Discoveries
- Technology
Demand for Health Services

- Population Health Status
- Self-Care

Health Needs

Ageing

- Health Needs Increase with Age
- Chronic Disease Prevalence
- Independence and Quality of Life
- Ageing in Place/Campus of Care

Discoveries

- New drug therapies
- Cardiac treatment
- Minimally Invasive Surgeries
- Diagnostic tools (MRI, PET)
- Prevention (e.g. Vaccines)
- Genomics
Factors Influencing Demand

1. Aging population – per capita spending increases as people age
2. Increased prevalence of chronic diseases
3. New treatments, therapies and technologies
4. Increased utilization of community services
5. Direct correlation with per capita wealth
Health Expenditure by Age

Figure 31: Total Provincial/Territorial Government Health Expenditure, by Age and Sex, Canada, 2008

Note
See Table E.1.11.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
Canadians over 65 will Increase 75% Over Next 20 Years

Canadian Per Capita Health Spending by Age - 2001
Source: Health Canada

Canadians over 65 will Increase 75% Over Next 20 Years
Utilization by Seniors

• British Columbia, 1971:
  – 2/3 of inpatient hospital days were provided to young and middle-aged persons
  – 1/3 to seniors

• British Columbia, 1996:
  – 1/3 of inpatient hospital days were provided to young and middle-aged persons
  – 2/3 to seniors
Average use of publicly funded services per person is increasing

Even after adjusting for aging, utilization per capita is rising.

Similar patterns seen across Canada
Chronic Health Conditions:
Size of population / number of co-morbidities

<table>
<thead>
<tr>
<th>Year</th>
<th>6+ disease</th>
<th>4-5 disease</th>
<th>2-3 disease</th>
<th>0-1 disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>22,141</td>
<td>136,797</td>
<td>819,066</td>
<td>8,037</td>
</tr>
<tr>
<td>2009</td>
<td>23,018</td>
<td>142,217</td>
<td>851,515</td>
<td>8,037</td>
</tr>
<tr>
<td>2020</td>
<td>25,204</td>
<td>155,721</td>
<td>932,374</td>
<td>9,037</td>
</tr>
<tr>
<td>2030</td>
<td>26,773</td>
<td>165,419</td>
<td>990,437</td>
<td>9,037</td>
</tr>
</tbody>
</table>

Source: MoH MSD data
Use of Acute Services by Older People

Older people (65+) are involved in about:

- 41% of inpatient cases
- 55% of inpatient days
- 39% of Same Day Care Cases
- 39% of Ambulatory Care Visits
- 21% of ER visits
Figure 2: Acute Care, MSP and PharmaCare Expenditures by Health Status, B.C., 2005/06

Source: Discharge Abstract Database (DAD), Medical Services Plan (MSP) and PharmaCare data, 2005/06.
Figure 3: Cost per Patient by Health Status, B.C., 2005/06

Total Costs

$35,000

$30,000

$25,000

$20,000

$15,000

$10,000

$5,000

$0

1,385,058 Patients

679,018 Patients

1,307,452 Patients

84,246 Patients

Hospital Proxy Costs per Capita

MSP Costs per Capita

PharmaCare Costs per Capita

Patient Category

Acute Condition(s)

Possible Chronic Condition

1-3 Confirmed Chronic Conditions

4-6 Confirmed Chronic Conditions

7+ Confirmed Chronic Conditions

Source: Discharge Abstract Database (DAD), Medical Services Plan (MSP) and PharmaCare data, 2005/06.
Figure 8: Hospital Bed Days per Person by Health Status, B.C., 2005/06

Source: Discharge Abstract Database (DAD), 2005/06.
34% of BC residents with 1 or more chronic diseases

Cost of Chronic Disease

Consume 80% of the acute, MSP and Pharmacare budgets

Causes of Death by Age

Exhibit 1: Impact of chronic disease

% of the world’s type 2 diabetes cases linked to high body mass index (BMI)\(^1\)

Estimated

![Pie chart showing BMI>25](image)

Number of people worldwide with diabetes,\(^3\)
millions

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>246</td>
<td>+54%</td>
</tr>
<tr>
<td>2025 (projected)</td>
<td>380</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)“Obesity and overweight fact sheet,” World Health Organization (www.who.int/dietphysicalactivity/media/en/gsfs_obesity.pdf)

\(^3\)“Preventing chronic diseases: A vital investment,” World Health Organization (www.who.int/chp/chronic_disease_report/full_report.pdf)
Increase in People with Dementia - 2038
Growth in surgeries due to population growth, aging and ‘doing more’

Increase in surgeries from 1990/91 to 2007/08:
- Due to aging: 10945 (32%)
- Due to doing more surgeries per capita: 5753 (53%)
- Due to population growth: 1152 (11%)

Appropriateness

- Next major opportunity for improvement:
  Focus on ‘what’ gets done, not just how much it costs!
- Some treatments, drugs have reduced probability of good outcomes; some are redundant and unnecessary
- Requires evidence-based protocols to guide physician treatment choices
- Patient safety and quality initiatives must be strengthened
- Implementation, monitoring and evaluation systems required
- Essential that physicians be leaders in this initiative
Cataract surgery: Post-operative Changes in Visual Function Assessment Score

Same = 1%
Worse = 26%
Improved = 70%
Disease Rates by Income Level

Age-Specific Rates of Hospitalized Acute Myocardial Infarction Events by Neighbourhood Income Quintile, Canada, 2008–2009

Crude Rate per 100,000 Population

Age Group (Years)

20–44
45–64
65+

Q1 (Least Affluent)
Q2
Q3
Q4
Q5 (Most Affluent)
Variances in Treatment

Age-Standardized Hysterectomy Rates by Province/Territory, Canada, 2008–2009

Age-Standardized Rate per 100,000 Population
- Above Canada Rate
- Same as Canada Rate
- Below Canada Rate

Table of rates:
- Canada: 338 (335–341)
- [Other provinces and territories with specific rates indicated on the map]
Treatment Variances – Rural vs Urban

Age-Standardized Hysterectomy Rates by Indication and Urban/Rural Dwelling, Canada, 2008–2009

- Uterine Fibroids: Rural 130, Urban 108
- Menstrual Disorders: Rural 135, Urban 66
- Genital Prolapse: Rural 64, Urban 44
- Gynecological Cancers: Rural 49, Urban 45
- Endometriosis: Rural 48, Urban 28
- Other Conditions: Rural 39, Urban 27
Balancing Supply and Demand
Supply Side

- Access
- Continuum of Care
- Patient Flow
- Acute vs Ambulatory/Community

- Process Redesign
- Consolidation
- Supply Chain
- E-Information

- Protocols/Best practices
- Safety and Quality
- EMR
- Prevention

Health Needs

Productivity

Appropriateness
Strategies to Improve Optimization of Funds

1. Integrated Patient Services – Continuum of Care
2. Productivity Improvement Initiatives
   - LEAN, Process Redesign
3. Consolidation
4. Shared Services – procurement, admin
5. Contracting out
6. Private delivery
7. Quality Initiatives
8. Training and Skills Development
9. Incentive Programs (Pay for Performance)
Benefits of Good Patient Flow

- Most appropriate
- Most cost efficient

<table>
<thead>
<tr>
<th>Home</th>
<th>Acst. Living</th>
<th>Res. Care</th>
<th>Rehab</th>
<th>TCU</th>
<th>Acute</th>
</tr>
</thead>
</table>
Process Redesign: Efficiency in the OR

Process for running two Operating Rooms concurrently

25% improvement in productivity in OR and Length of Stay (LOS)
Chronic Disease: Care Planning is Fragmented
The Future: Integrated Personal Care Plan

- Specialists
- Patient
- Pharmacy
- Hospital
- Dietitian
- Rehab
- CDN
- Lab
- GP

Shared Care Plan
Business Transformation Goal: Decrease Costs

- Workforce Utilization
- Clinical Transformation
- Business Transformation

- Contracts
- Revenue
- Supply Chain
- Lower Mainland Consolidation

Objective:

Costs
BC Shared Services Organization

Shared Services Board:
6 HA CEOs
+ MoH + up to two external members

Shared Services Organization:
Independent;
reports to
Shared Services Board

Health Authorities:
HA resources,
benefits flow
back and forth
The Promise of eHealth
Range of Health Services

- Acute care
- Community care
- Family practitioner
- Specialist
- Nursing telecare
- Pharmacy
- Diagnostic services
- Residential care
Health Services and eHealth

Acute care
- Hospital EPR
- Telecare EMR

Community care
- Community care system
- Personal Care Plan
- Shared Care Plan
- Lab/radiology results

Family practitioner
- EMR

Specialist
- EMR

Residential care
- Residential care system
- Drug information system

Pharmacy
- Nursing telecare
- Diagnostic services
Shared Care Plan

Viewable by Providers

Wherever they see the Patient

Chronic Disease Nurse
Primary Care Group
Emergency
Pharmacist
Specialist
Monitoring Services

Driven by aging population, multiple chronic disease

Enable:
- Greater functionality & independence
- Fewer ER visits

New innovation is devices:
- Blood pressure
- Respiratory
- Cardiac
- Neurological
- Blood glucose
New Funding Models

Much attention is being paid to new funding models and incentives:

- Incentive-based Funding
- Activity-Based Funding
- Population-needs Based Funding
- Block Funding
Where do the Funds Come From?

Figure 7: Health Expenditure by Source of Finance, Canada, 1975 to 2010

Note
See Table A.2.1.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
Private Sector Source of Funds – More Private Insurance

Figure 9: Distribution of Private-Sector Health Expenditure by Source of Finance, Canada, 1988 and 2008 ( Millions of Dollars and Percentage Share)

- **1988**
  - Household (Out of Pocket): $3,735.7 (29.2%)
  - Private Health Insurance: $7,434.8 (58.1%)
  - Non-Consumption: $1,625.9 (12.7%)

- **2008**
  - Household (Out of Pocket): $20,882.0 (41.2%)
  - Private Health Insurance: $24,928.6 (49.1%)
  - Non-Consumption: $4,914.4 (9.7%)

Source
National Health Expenditure Database, Canadian Institute for Health Information.
Public and Private Health Expenditures

Figure 14: Public and Private Shares of Total Health Expenditure, by Use of Funds, Canada, 2008

Note
See tables C.1.1, C.2.1 and C.3.1 and Section 8.1 for definitions.
Source
National Health Expenditure Database, Canadian Institute for Health Information.
OECD Health Expenditure as % of GDP

Figure 39: Total Health Expenditure as a Percentage of GDP, 26 Selected Countries, 2008

United States: 16.0%
France: 11.2%
Switzerland: 10.7%
Germany: 10.5%
Austria: 10.5%
CANADA: 10.4%
Belgium: 10.2%
Portugal: 9.9%
Netherlands: 9.9%
New Zealand: 9.9%
Denmark: 9.7%
Sweden: 9.4%
Iceland: 9.1%
Spain: 9.0%
Norway: 8.5%
Australia*: 8.5%
Finland: 8.4%
Japan*: 8.1%
Slovak Republic: 7.9%
Hungary: 7.3%
Luxembourg*: 7.2%
Czech Republic: 7.1%
Poland: 7.0%
Korea: 6.5%
Turkey*: 6.0%
Mexico: 5.9%

Notes:
* Data for 2007.
† Data for 2006.
Source:
Private Sector Health Expenditure as % GDP

Figure 41: Private-Sector Health Expenditure as a Percentage of GDP, 26 Selected Countries, 2008

United States: 8.5%
Switzerland: 4.4%
Netherlands: 3.3%
Mexico: 3.1%
Canada: 3.1%
Korea: 2.9%
Portugal: 2.8%
Australia: 2.8%
Belgium: 2.8%
Spain: 2.5%
Germany: 2.5%
France: 2.5%
Slovak Republic: 2.4%
Austria: 2.4%
Finland: 2.2%
Hungary: 2.1%
New Zealand: 1.9%
Poland: 1.9%
Turkey: 1.9%
Sweden: 1.7%
Iceland: 1.5%
Denmark: 1.5%
Japan: 1.5%
Norway: 1.3%
Czech Republic: 1.2%
Luxembourg: 0.7%
Total Health Expenditure as % GDP
Types of Public Sector Funding

Figure 49: Percentage of Total Health Expenditure Financed by the Public Sector, by Source of Finance, 26 Selected Countries, 2008
Separating the routine from the catastrophic

Distribution of total out-of-pocket health care expenses\(^1\) for US retirees aged 65+, 2005, $ thousand per capita

<table>
<thead>
<tr>
<th>Expected expenses best met through savings (95% probability)</th>
<th>Catastrophic expenses best met through insurance (5% probability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Graph showing the distribution of expenses]</td>
<td></td>
</tr>
</tbody>
</table>

Overall mean = 3.3

<table>
<thead>
<tr>
<th>% of total out-of-pocket health care expenses(^1)</th>
<th>Average expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Expected</td>
</tr>
<tr>
<td></td>
<td>Catastrophic</td>
</tr>
<tr>
<td>2014(^2)</td>
<td>Expected</td>
</tr>
<tr>
<td></td>
<td>Catastrophic</td>
</tr>
</tbody>
</table>

\(^1\)Excludes consumer-paid insurance premiums.

\(^2\)Projected.
Drivers of Change:
- Cost Pressures – 45% of provincial budgets
  - 11% of GDP
- Demand pressures – access, wait times
- New discoveries, therapies, drugs not adopted quickly
- Desire for preventative strategies, self-care, choice
- Perception of public sector inefficiency
Barriers to Change

Barriers to Change:
- Public expectations
- Politicization of healthcare
- Affordability – fear of not having access to care
- Powerful interest groups
- Culture – ‘public’ healthcare is ‘Canadian’
- Lack of knowledge of other models
Opportunities for Change

1. Personalized Medicine and Genomics
2. New discoveries and treatments
3. Patient self-care
4. Integrated system of care delivery