The financial and organizational challenges of the delivery of health services to an aging population

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Disclosure

I am not an economist
Disclosure (cont’d)

I am **not** a catastrophist
A few definitions
“Elderly”
Aging (mammalian)
Mechanism(s) of aging:

the gradual failure of an excellent self-regulating and self-repairing machine.
Mechanism(s) of aging (2):
“wear and tear” and “hits”
End result of ageing
Kidney Function: A Clinical Example
Aging = loss of reserve
7 diagnoses, 7 treatments
7 Diagnoses

1. number of older persons
2. poly-pathology and resultant poly-pharmacy
3. MDRs vs LDRs
4. costs in last year of life
5. dysfunctional health care systems
6. bad news: ageism and stigma
7. good news: healthy aging
Dx # dysfunctional health care systems
Diagnosis # 1: more old people
good news: healthy aging Dx #
Diagnosis # 1: more old people

A tale of three pyramids
Japanese population, m

Source: National Institute of Population and Social Security Research
Treatment # 1

1. Rejoice !!

2. Relax (eg. cf Sweden)

3. Reproduce: eg. child friendly policies, immigration
Diagnosis # 2: poly-pathology and poly-pharmacy

1. Frail old people are medically complex
2. Frail old people take a lot of medications
3. Frail old people require special care
Treatment # 2

1. Education and planning (e.g. geriatrics in med school)

2. Education and planning (e.g. encouraging residencies in geriatrics)

3. Education and planning (development of CGAUs and falls prevention programs)
Diagnosis # 3: aging in the LDRs
How long does it take for a country to age?
Treatment # 3

1. economic development

2. “simple “ low tech medical interventions. eg Dx and Rx of hypertension

3. tobacco control

4. Believe it or not: obesity control
Dx # 4: costs in last year of life
Rx # 4:

1. Costs are more related to the *process* of dying than to age itself

2. In old age, practice “sensible “ medicine; examples:
   
   a) eg. living wills and DNR

   b) restrict futile screening (eg PSA)

   c) restrict use of futile meds (eg anti-dementia drugs in AD)
Dx # 5: dysfunctional health care systems

1. Elderly patients tend to get lost in the system (multiple specialists, weak primary care, poor navigational skills)

2. Disconnect between acute care (eg HMOs) and LTC (eg in Israel, Kupot vs MoH [codim])

3. Public-private mix, esp in LTC
For-profit vs not-for-profit in nursing homes:

- **NFPs:**
  - 67/100 points

- **FPs:**
  - 55/100 points

(Clarfield AM et al, Arch Gerontol Geriatr 2009)
Rx # 5

1. Link costs/responsibility for institutional LTC with HMOs, so they will have a positive incentive to:
   
a) Invest in health promotion/prevention
b) Provide excellent rehab
c) Organize a controlled spectrum of care (eg geriatrician in the ER)
d) Implement integrated services for frail elders (eg SIPA in Quebec, PACE in US)
Dx # 6: Bad news: Ageism and Stigma
Treatment # 6

1. Education

2. Policy: incentives to work in ageing
Dx # 7: good news - healthy aging
(NEJM 1980)
Will our grandchildren be healthier than were our parents and grandparents?
Rx # 7; 6 tracks of evidence

• the demographic transition
  ✓ life expectancy
• last year of life
• prevalence of AD
• rates of institutionalization
  ✓ rates of disability
## Increase in life expectancy
(even in old age)

### Evolution of Life Expectancy by Age and Sex, Canada, 1921–1990

<table>
<thead>
<tr>
<th>Year</th>
<th>At Birth Males</th>
<th>At Birth Females</th>
<th>At Age 65 Males</th>
<th>At Age 65 Females</th>
<th>At Age 85 Males</th>
<th>At Age 85 Females</th>
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</thead>
<tbody>
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<td>1921*</td>
<td>58.8</td>
<td>60.6</td>
<td>13.0</td>
<td>13.6</td>
<td>4.1</td>
<td>4.3</td>
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<td>1931</td>
<td>60.0</td>
<td>62.1</td>
<td>13.0</td>
<td>13.7</td>
<td>4.1</td>
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<td>1941</td>
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<td>12.8</td>
<td>14.1</td>
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<td>4.4</td>
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<td>70.9</td>
<td>13.3</td>
<td>15.0</td>
<td>4.3</td>
<td>4.7</td>
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<td>68.4</td>
<td>74.3</td>
<td>13.6</td>
<td>16.1</td>
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<td>1971</td>
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<td>13.8</td>
<td>17.6</td>
<td>5.0</td>
<td>5.9</td>
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<td>1981</td>
<td>71.9</td>
<td>79.1</td>
<td>14.6</td>
<td>18.9</td>
<td>5.2</td>
<td>6.6</td>
</tr>
<tr>
<td>1990</td>
<td>73.9</td>
<td>80.5</td>
<td>15.4</td>
<td>19.6</td>
<td>5.2</td>
<td>6.7</td>
</tr>
</tbody>
</table>
## Trends in disability in 12 countries (women)

<table>
<thead>
<tr>
<th>Country</th>
<th>Year(s)</th>
<th>Age (years)</th>
<th>Annual Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1981; 1993</td>
<td>65-69</td>
<td>-1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70-74</td>
<td>+1.0</td>
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<tr>
<td></td>
<td></td>
<td>75-79</td>
<td>-1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80+</td>
<td>-2.1</td>
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<td>Canada</td>
<td>1986; 1991</td>
<td>65-74</td>
<td>-5.2</td>
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<td>75-84</td>
<td>+1.3</td>
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<td></td>
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<td>85+</td>
<td>-1.0</td>
</tr>
<tr>
<td>Germany</td>
<td>1986; 1995</td>
<td>65-69</td>
<td>-3.2</td>
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<td></td>
<td>80+</td>
<td>-1.5</td>
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</tbody>
</table>

(Jacobzone S. Health Affairs, 2000)
Virtuous behaviour
Probability of an additional 20-year survival to age 90 years for a 70-year-old man, according to the presence of 0 to 5 modifiable adverse factors at baseline, including smoking, diabetes, obesity, hypertension, and sedentary lifestyle, or their common clustering.

2 conclusions

1) Ageing is a challenge
2) Ageing is a surmountable challenge
Thank you/merci/todah/shukran