Comparing public health systems across Canada: data and gold standards

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Objectives

1. Review essential components of public health systems

2. Summarize data available to compare Canadian public health jurisdictions

3. Document international and national gold standards for public health infrastructure
Methodology

Summary

1. Literature review
   - Peer reviewed and published literature
     o Medline + EMBASE 2005-2015; MeSH: Public health, manpower, economics; Eng/Fr/Spa
     o >1900 titles identified and screened: ≥ 80 articles selected and analysed
   - Grey literature
     o Google scholar, governmental websites, Public health services & systems research (USA)
     o CIHI, National collaborating centers
     o ≥ 40 documents selected and analysed
   - Follow-up of key references
   - Personal communications

2. Key informant validation (delayed)

3. Dissemination of results
   - Detailed presentation with international comparisons: Guyon, 2014
   - Submit for publication: fall 2015
## Essential components of public health systems

<table>
<thead>
<tr>
<th>Context</th>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical &amp; political</td>
<td>Infrastructure</td>
<td>Essential functions</td>
<td>Determinants</td>
</tr>
<tr>
<td>Key public health stakeholders</td>
<td>• Legal</td>
<td>• Surveillance</td>
<td>Health status</td>
</tr>
<tr>
<td></td>
<td>• Administrative and organisational</td>
<td>• Promotion</td>
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<td></td>
<td>• Informational</td>
<td>• Prevention</td>
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<td></td>
<td>• Physical and technical</td>
<td>• Protection</td>
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<td>• ...</td>
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<tr>
<td>Resources</td>
<td>• Financial</td>
<td>Interventions</td>
<td></td>
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<td></td>
<td>• Human</td>
<td>• Direct services</td>
<td></td>
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<tr>
<td></td>
<td>• Capacity for professional development</td>
<td>• Advocacy/ strategic influence</td>
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<td>• ...</td>
<td>• Partnerships</td>
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<td>• Support/ Expertise</td>
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<td>• Authority</td>
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<td></td>
<td>• Municipal</td>
<td>Settings</td>
<td></td>
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<tr>
<td></td>
<td>• Healthcare</td>
<td>• Municipal</td>
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<td>• ...</td>
<td>• Healthcare</td>
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<td>• ...</td>
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A. Guyon, May 25th 2015
Public health systems
## Data (relatively) available across Canada

<table>
<thead>
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<th>Context</th>
<th>Structure</th>
<th>Process</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical &amp; political</td>
<td><strong>Infrastructure</strong></td>
<td>✓ Essential functions</td>
<td>Determinants</td>
</tr>
</tbody>
</table>
| Key public health stakeholders | ✓ Legal  
|                       | ✓ Administrative and organisational  
|                       | • Informational  
|                       | • Physical and technical  
|                       | • …  
|                       | **Resources**                                  |                                | ✓ Health status   |
|                       | ✓ Human                                        |                                |                   |
|                       | ✓ Financial                                    |                                |                   |
|                       | • Capacity for professional development  
|                       | • …  
|                       | **Interventions**                              |                                |                   |
|                       | • Direct services                              |                                |                   |
|                       | • Advocacy/ strategic influence                |                                |                   |
|                       | • Partnerships                                 |                                |                   |
|                       | • Support/ Expertise                           |                                |                   |
|                       | • Authority                                    |                                |                   |
|                       | **Settings**                                   |                                |                   |
|                       | • Municipal                                    |                                |                   |
|                       | • Healthcare                                   |                                |                   |
|                       | • …                                           |                                |                   |

Sources of data: NCCHPP, CIHI, Naylor report, Public health norms, standards...

A.Guyon, May 25th 2015
Public health systems
# Comparing public health structures

## Dominant infrastructure of public health systems

<table>
<thead>
<tr>
<th>Centralised</th>
<th>Regional</th>
<th>Local/ Municipal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Alberta ¹ AHS</td>
<td>• BC ⁵RHA</td>
<td>• Ontario ³⁶ PHU</td>
</tr>
<tr>
<td>• Québec ¹⁸ DSP...</td>
<td></td>
<td></td>
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<tr>
<td>•...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Norway ⁴²⁸ municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Sweden ²⁹⁰ municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• England ¹⁵² local authorities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Finland ³²⁰ municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Denmark ⁹⁸ municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Netherlands ³⁹³ municipalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• France</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• USA ³⁰⁰⁰ city/county health dept.</td>
<td></td>
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</tbody>
</table>

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Comparing public health structures

Human resources

Public health nurses, Epidemiologists, Medical specialists in public health, GPs working in public health, Toxicologists, Occupational specialists, Public health nutritionists, Demographers...

Comparing public health structures
Medical specialists in public health and preventive medicine

- Canada: 482
- Québec: 195
- Ontario: 140
- BC: 53
- Alberta: 37

Number of medical specialists in PH and preventive med.

CIHI 2013 (Scott’s Medical Database)
Comparing public health structures
Financial resources

I spend $ per capita in public health (CIHI)
...this includes expenditures in:
• Food and drug safety
• Health inspections
• Community mental health programs
• ...+/- MDs in public health (Quebec)

What is your public health budget?

CIHI 2014, National health expenditure trends 1975-2014,
Appendix A – Methodological notes
Comparing financial resources
Canada – CIHI data, 2014
Provincial public health expenditures, per capita current dollars

<table>
<thead>
<tr>
<th>Province</th>
<th>Expenditures, per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC</td>
<td>$322</td>
</tr>
<tr>
<td>Alberta</td>
<td>$282</td>
</tr>
<tr>
<td>Ontario</td>
<td>$259</td>
</tr>
<tr>
<td>Canada</td>
<td>$235</td>
</tr>
<tr>
<td>Québec</td>
<td>$114</td>
</tr>
</tbody>
</table>

CIHI 2014, Ballinger 2007
Comparing financial resources

...?!$ CIHI data does not match our provincial data

Quebec public health expenditures 2012-2013 325 834 816$
(programme-service santé publique)

Quebec population 2013 statcan 8 154 000

Public health expenditure per capita 2013
114 $ per capita
40$ per capita

Expenditures do not include public health physician payments (RAMQ)

MSSS 2014. Dépenses par programme 2012-2013 (Contour financier)
MSSS 2013. Rapport annuel de gestion du MSSS
Comparing financial resources
Estimates by Nova Scotia\textsuperscript{2006} based on Naylor\textsuperscript{2003}

- Alberta
- BC
- Canada
- Ontario
- Québec

Provincial public health expenditures, per capita

\begin{itemize}
  \item Alberta: $\$ -$
  \item BC: $\$ 57$
  \item Canada: $\$ 44$
  \item Ontario: $\$ 37$
  \item Québec: $\$ 36$
\end{itemize}
Comparing public health processes
Functions and interventions

Essential functions in Québec
Surveillance
Promotion
Protection
Prevention

Large variations in public health’s responsibility in:
• Food inspection
• Restaurant inspection
• Environmental inspection
• Permits for healthcare facilities
• ….

Large variations in clinical prevention leadership

NCCHPP 2014, Aluttis 2013, Beitsch 2006

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Public health systems
Comparing public health outcomes
Data available across Canada

• ...Determinants of health
  ...provincial GINI coefficients
  ...Human development index at a subnational level
  ...

✅ Health status
CIHI
Conference Board of Canada
Commissaire à la santé et au bien-être, Québec
...
Conclusions
...Comparing public health systems is no small task

• **No consensus** on public health definitions and typologies  Jorm et al. 2009, Ingram 2012, Aluttis 2013, Kaiser 2008


• **VERY difficult to estimate** public health human resources  Gebbie 2002, Sim et al. 2007, Paccaud 2013, Kennedy 2009, Russell 2009
Conclusions
Performant public health systems do exist

• Canadian gold standards
  Quebec + BC... (Ontario)?

• Performance predictors in public health
  – Optimal catchment area:
    100 000 to 500,000 Hyde 2012, Mays et al 2009, Moloughney 2005
  – in public health expenditures
    Hyde 2012 (+10$/ per capita), Conference Board 2014, 2015
  – Sufficient and competent human resources
    Hyde 2012
Public health systems research is crucial and urgent!
Cdn PH systems and services research think tank, 2011

Questions ?
Comments ?
akingabe.guyon@mail.mcgill.ca
References

- Canadian Institute for Health Information (CIHI). 2013. Nombre, répartition et migration des médecins canadiens. Tableau 2.3: Nombre de médecins par 100 000 habitants, selon la spécialité et la province ou le territoire, 2013. ICIS, Ottawa.
References


• Ministère de la santé et des services sociaux (MSSS). 2013. Rapport annuel de gestion 2012-2013 Ministère de la santé et des services sociaux. MSSS, Québec.


