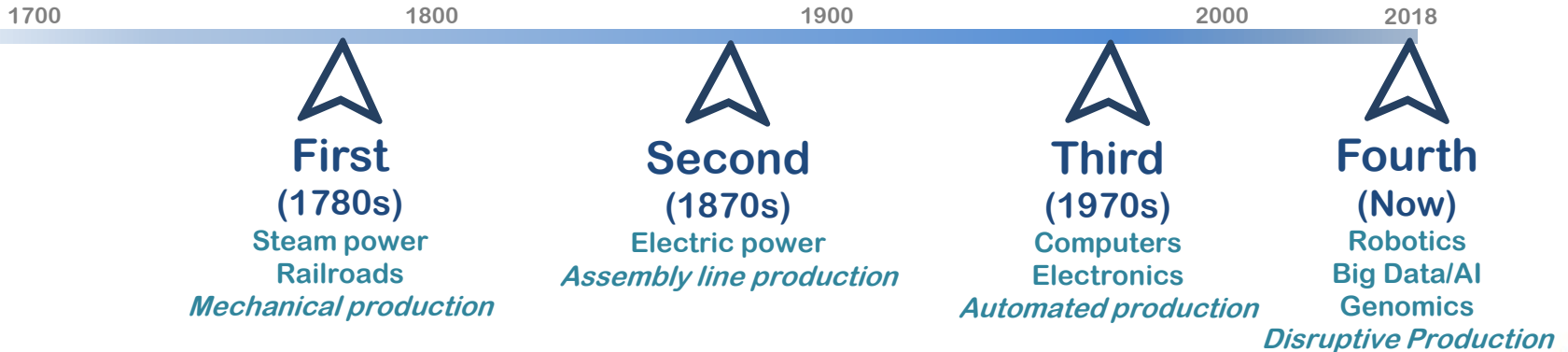


Canada's Future: Through Innovation?



Alan E. Winter
BC's Innovation Commissioner

Industrial Revolution



Fourth Industrial Revolution



Physical



Digital



Biological



Convergence

Innovation is the manifestation of human potential and creativity. It allows societies to solve problems, and seize new opportunities, and achieve higher standards of living. Innovation is what makes businesses thrive.

- Council of Canadian Academies

Innovations in health

Examples include:

➤ **Next-gen sequencing**

➤ **3D printing**

➤ **Immunotherapy**

➤ **Artificial Intelligence**

➤ **Virtual Reality**

➤ **Biosensors & trackers**




➤ **Point-of-care diagnostics**

➤ **Convenience care**
retail clinics and urgent care

➤ **Tele-health**

➤ **Social media**
to improve patient experience

Why is innovation in healthcare difficult?

-  Organizational structure.
-  Human health.
-  Public system.

Denmark's Experience

 **Vision for Healthcare** as an economic driver



//

Denmark should be among the most attractive countries in the world for developing, testing and manufacturing health and care solutions based on strong research, fast implementation of innovative new technology, good conditions for public-private collaboration and a well-functioning, development-oriented home market.

//

- **Denmark at Work: Plan for Growth in Health and Care Solutions**
The Danish Government

Denmark's Experience

		
Health Spending % of GDP	10.6%	10.4%
Life Expectancy at birth	81.7	80.8
Hospital Stay Length	7.6	3.5
gross domestic Spending on R&D as a % of GDP	1.6	3.1
Social Spending as a % of GDP	17.0	30.1

Denmark's Experience

Super Hospital Program

Key Targets:

- ▷ **20% decrease in number of beds**
- ▷ **50% decrease in number of Emergency Departments**
- ▷ **50% increase in outpatient treatment space**
- ▷ **Reduce Average length of stay, from 3.5 to 2.9 by 2020**

How does Canada rank?

Health & biosciences

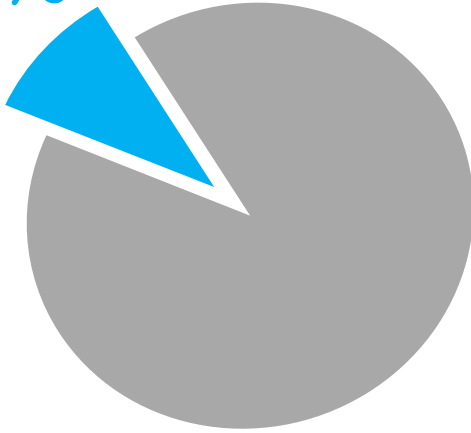
\$7.8 billion

contribution to annual GDP
in 2016

0.45%

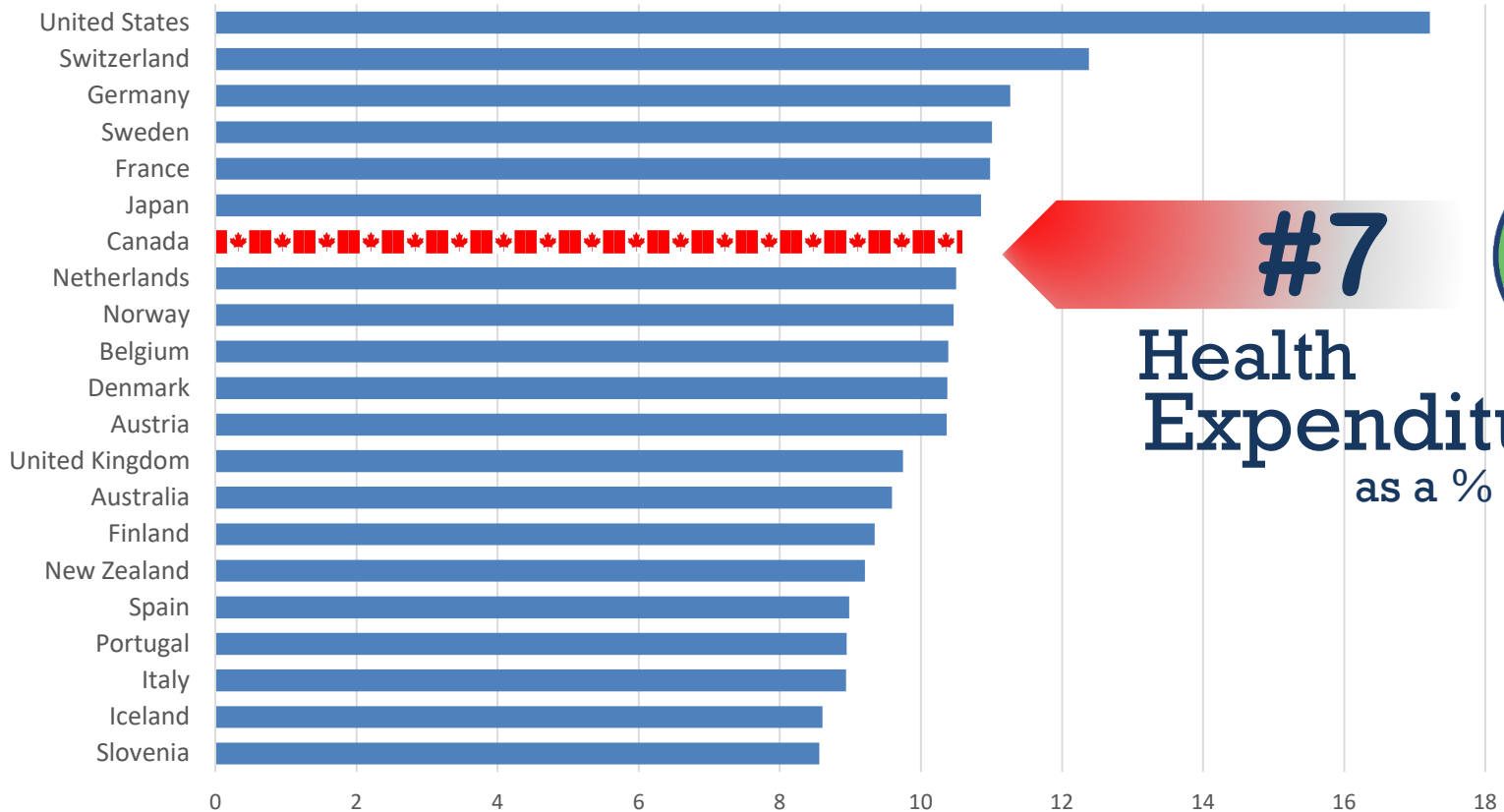
Broader healthcare

11% of Canada's annual GDP



Source: ISED analysis, Canada's Economic Strategy Table: Health & Biosciences Interim Report

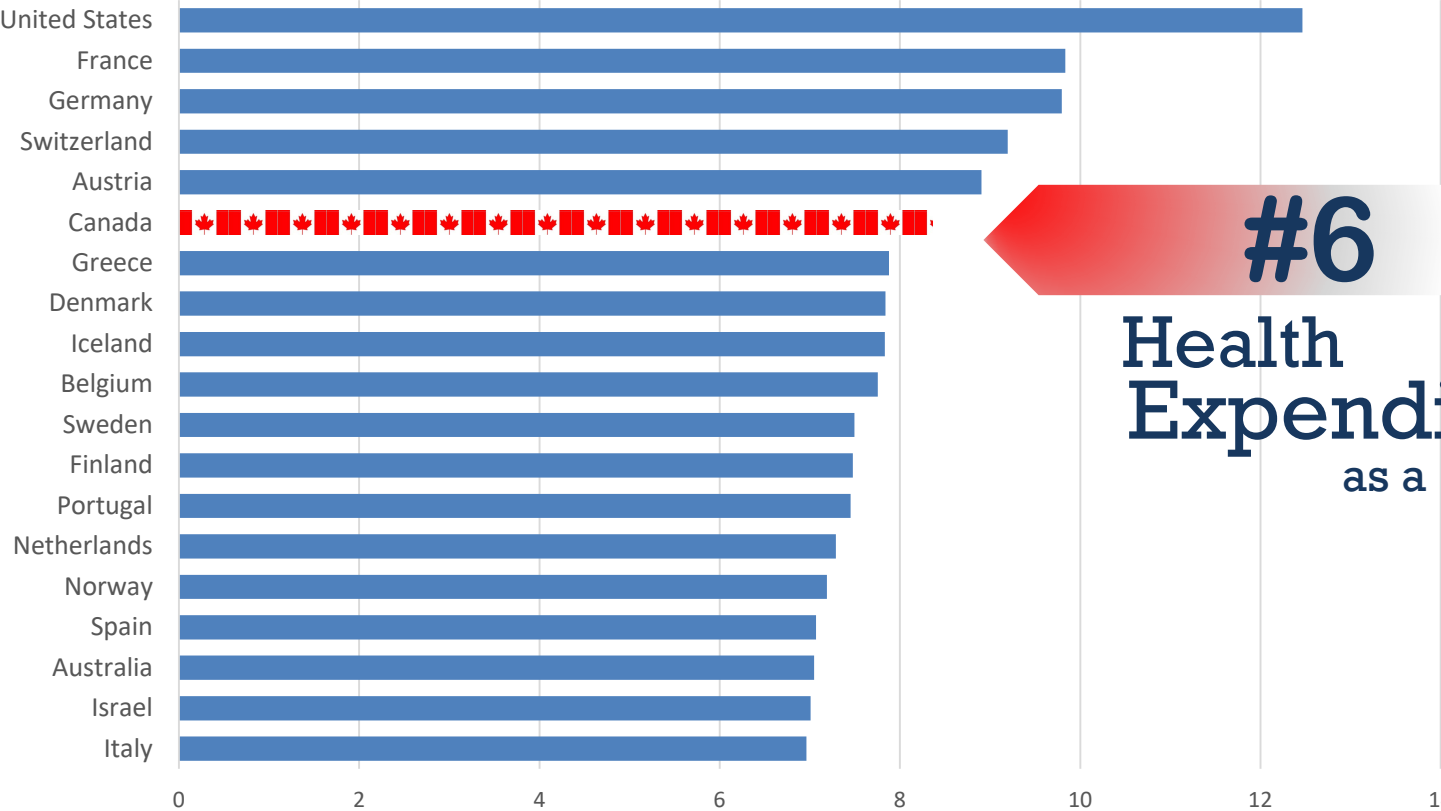
How does Canada rank?



#7
Health Expenditures
as a % of GDP
2016

Source: 2016 data via OECD Health Statistics, 2017

How does Canada rank?



#6

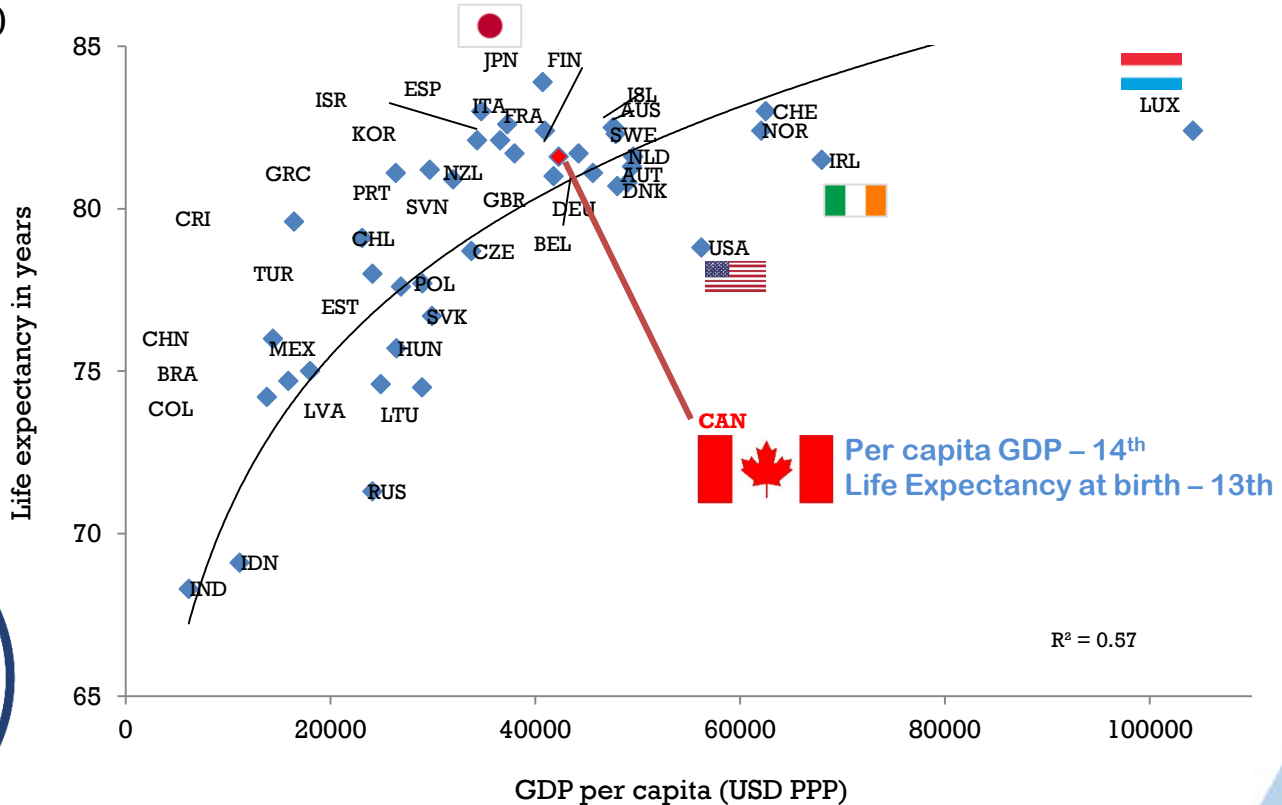


Health Expenditures
as a % of GDP
2006

Source: 2006 data via OECD Health Statistics, 2017

How does Canada rank?

Life expectancy at birth and GDP per capita
2015 (or nearest year)



How does Canada rank?

#3

For quality and influence
of stem cell and regenerative medicine research

For clinical trial quality, expertise
and ability to conduct complex studies

#6





CANADA'S ECONOMIC STRATEGY TABLES

Health and Biosciences Priority Themes (2018)



Increasing access to capital and growing Canadian firms



Enabling innovative procurement, technology adoption and commercialization



Strengthening the health system with technology



Ensuring the right skills and talent are available

Health Research in BC

Examples include:



Plus, significant investments in health research in BC by charities, the federal government and industry.

BC SUPPORT Unit:

Patient / Public engagement
Research, scientific expertise
Methods clusters
Patient-centred measurement
Health Research Connection

Clinical Trials BC:

Industry connections
Best practice

Data:

Health data platform
Data services & supports

Ethics Harmonization

Initiative Planning/Supports/Protocols, Connect to Partner Expertise/Resources

Implementation Science

Monitoring, Evaluation, Outcomes & Value Measurement, Findings Dissemination

Corporate Functions:

Finance / Admin / Operation / Communication

Innovation Commissioner

- ▷ Encourage federal partnerships
- ▷ Advocate for innovation funding
- ▷ Champion BC's tech sectors
- ▷ Promote BC as investment location
- ▷ Connect companies internationally
- ▷ Support BC government programs



Canada's Digital Supercluster



Natural
Resources



Precision
Health



Industrial

Data Visualization

AR-MR-VR | Mapping | Simulation & Modelling

Data Analysis

Cloud | Supercomputing | Quantum Computing | Machine Learning

Data Collection

Internet of Things | Connectivity | Data Repositories



LEARN MORE:

DigitalSupercluster.ca

Precision Medicine



- ⊕ Treatment influenced by a person's molecular profile
- ⊕ Therapy matched to disorder
- ⊕ Potential to:
 - ⊕ Improve outcomes
 - ⊕ Shift focus to preventative care
 - ⊕ Manage costs

Supercluster: Phase 1

Secure Health & Genomics Platforms



Build core infrastructure for a secure health and genomic platform enabling cancer treatments through Personalized Onco-Genomics

Possible Collaborators:



First Nations Health Authority
Health through wellness



First Nations
Technology Council



BC Cancer Agency
CARE + RESEARCH



Jewish General Hospital
Foundation



Supercluster: Phase 1

Tailored Health Therapies



Build a platform to implement cognitive analytics and machine learning technologies to create tailored health therapies for patients

Possible Collaborators:



Supercluster: Phase 1

Patient-centric Care



Provide Canadians with their health data and insights to assist patients and caregivers in managing health and wellness

Possible Collaborators:

Logos of potential collaborators:

- AngureX
- careteam
- clarius
- curatio™
- D:wave The Quantum Computing Company™
- First Nations Technology Council
- ayogo
- CHANGE HEALTHCARE
- CRIM
- Deloitte.
- First Nations Health Authority Health through wellness
- Genome British Columbia
- fraserhealth
- GenXys Health Care Systems
- LifeLabs™
- METAOPTIMA
- new hippo HEALTH+
- Providence HEALTH CARE
- TELUS
- TwoTall totems
- LifeSciences British Columbia
- Microsoft
- PHEMI™ Big Data. Shared. Simply. Securely.
- SFU
- Terramera
- UBC
- UVIC

Conclusions

- ▷ Innovation is a key driver of our society.
- ▷ Exciting opportunities in health innovation abound.
- ▷ Health innovation and wealth creation can co-exist.
- ▷ BC is well positioned.

Canada's Future: Through Innovation!

International Health Care Summit:
Kelowna, BC - June 25, 2018

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BC's Innovation Commissioner
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