Responsible innovation in health and lessons for sustainable health systems

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Medicare at a crossroads
CHSPR 34th Annual Health Policy Conference, April 1, 2022

Located on the unceded territory of the Kanien’kehá:ka nation (Mohawk), historically known as a gathering place for many First Nations.
OUTLINE

1. Recovering from the pandemic — Lessons learned about innovation and health systems

2. Challenging the status quo in innovation systems — Why and how?

3. Valuing different outcomes — Responsible Innovation in Health (RIH)
Defining Innovation

From ideation to production, and commercialization, to dissemination, adaptation, use, and withdrawal.
Need to handle three distinct industries that are not aligned with health system needs and challenges.

Post-pandemic health systems should rely on a 21st century innovation system that rewards more responsible innovations and entrepreneurial practices.
RECOVERING FROM THE PANDEMIC — LESSONS LEARNED ABOUT INNOVATION AND HEALTH SYSTEMS
How Can Health Systems Better Prepare for the Next Pandemic? Lessons Learned From the Management of COVID-19 in Quebec (Canada)

A Crisis that is Both Systemic and Global

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HOW WERE INNOVATIONS INVOLVED?

- **Surveillance**
  - Lack of reliable information systems

- **Workforce**
  - Training, safety & protection

- **Infrastructures & medical supplies**
  - Shortage’s consequences & ethical dilemmas

- **Governance**
  - Approval & distribution of tests, vaccines & drugs

- **Communication mechanisms**
  - Social media & digital amplifiers

- **Trust**
  - Telehealth + COVID-19 tracking apps

(Alami et al. 2021)
**Key Dynamics Established Before COVID-19**

**Dependence upon the medical device and pharmaceutical industries**
- Quasi-monopolistic + Globalized supply chains + Obsolete ‘rules of the game’ (WTO)

**Thriving digital industry with no, little or less regulation**
- FDA regulatory relief for apps targeting depression, anxiety and insomnia (Martinez-Martin et al., 2020)

**Power relations in vaccines production & distribution**
- Politics impeded their scaling in developing countries (Sampat & Shadlen, 2021)
COVID-19 has shown that health and social care systems are resilient when they are already strong (Alami et al. 2021)

Beyond the rate of innovation, its direction also influences health outcomes (Sampat & Shadlen, 2021)
CHALLENGING THE STATUS QUO IN INNOVATION SYSTEMS — WHY AND HOW?
TODAY’S INNOVATIONS...

→ Targeted at highly skilled providers

Access
Service delivery

Health system needs & challenges

→ Affect nature and scope of tasks & skills

Training Human resources

→ Challenge dissemination, use & reimbursement

Policy implantation Governance

(Roncarolo et al., 2017; Lehoux et al., 2019)
The supply of health innovations

The state

Enterprises ↔ Universities & academic teaching centers ↔ Capital holders
This is a system of innovation

The state

Sector-focused economic development policies

Universities & academic teaching centers

Discovery-oriented research

Enterprises

Capital holders
Providing Direction to Innovation
Must Read! Mission-Oriented Innovation Policy

Mariana Mazzucato
Economist, University College London

The public sector must shape markets for problem-solving innovations
This doesn’t mean throwing money away at the private sector!

The COVID-19 crisis is a chance to do capitalism differently
We shape innovations, and they shape us in return...

Innovation prioritizes what we value and do...

Humans

... and ignores what we don’t sufficiently value or do poorly

Innovations
Valuing Different Outcomes — RIH
Value is not to be found in the innovation itself

→ Rather, it lies with how users perceive its ability to expand their skills and range of actions (Ramirez, 1999)

What valuable skills and actions shall health systems expand?

→ The RIH answer: Those that make health systems equitable as well as economically and environmentally sustainable
How can innovations better meet the challenges of health systems?

What is and is not RIH

Alternative business models and socially-oriented entrepreneurship

Impact investing and public procurement
EMPIRICAL RESEARCH IN THREE SYSTEMS OF INNOVATION

Ontario

Quebec

São Paulo state
Gained traction in European research policy (rri-tools.eu)

Draws attention to innovations’ likely impacts, but also to their very purposes (Owen et al. 2012)

Aim: to develop collective capacity to steer the design of new technologies toward important societal challenges (von Schomberg 2011)
Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present.

Anticipation  Reflexivity  Inclusion  Responsiveness

(Stilgoe et al. 2013; rri-tools.eu)
PUTTING HEALTH AND SOCIAL CARE ‘FLESH AROUND THE BONES’ OF RRI

- Process-, product- and organization-level dimensions
- Health system needs and challenges
- Innovators’ and entrepreneurs’ views and practices
- Evidence-informed RIH framework and Assessment Tool
WHAT IS RIH

WHO
RIH consists of a collaborative endeavour wherein stakeholders commit to
clarifying and meeting a set of ethical, economic, social and environmental principles, values and requirements when they design, finance, produce, distribute, use and discard sociotechnical solutions to address the needs and challenges of health systems in a sustainable way (Silva et al. 2018).
To Align the Supply with the Demand — Five Value Domains & Nine Attributes

- Population health value: Health relevance, Ethical, legal & social issues, Inequalities
- Health system value: Inclusiveness, Responsiveness, Level & intensity of care
- Economic value: Frugality
- Organizational value: Business model
- Environmental value: Eco-responsibility
The RIH Assessment Tool Measures the Degree of Responsibility with a High Reliability

Excel scorecard and User Guide in English, French, and Portuguese available on www.infieri.umontreal.ca

(Silva et. al. 2018a; 2018b; Silva et al. 2021)
RIH aims to steer supply of health innovations towards:

- Important population health needs
- Timely responses to systemic challenges
- High-performing and affordable technologies
- Entrepreneurial activities that provide more value to society
- Greener solutions
Plenty of Real-World Examples — Illustrated RIH Booklet

Frugal orthopedic solution — Arbutus Drill Cover

Affordable, portable ultrasound — Butterfly IQ

Mobile vaccination clinics in food production facilities

Easy to use hearing test — Shoebox
CONCLUSION

COVID-19 created unique conditions for innovation in health and social care

Exemplified how 3 distinct industries are not aligned with health system needs and challenges

Rooting our values in post-pandemic health systems?

In a 21st century innovation system → health policymakers and managers shape a clear system-level demand for innovation

Innovators call for policies and regulations that reward RIH

(Rivard & Lehoux, 2019; Rivard et al., 2020; 2021a; 2022b)
THANK YOU FOR LISTENING!

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hinnovic.org
Mission-oriented policy is not top-down decision-making
→ Productive relationships with innovators
  + sharing of risks and rewards

Governments have to rethink intellectual-property regimes, their approach to R&D, public investment and procurement

Clearing house for grassroots and citizen-led solutions

(Mazzucato and Quaggiotto, 2020)
LESSONS ABOUT INNOVATION DURING COVID-19

A civic space for Do-it-Yourself solutions
• Bottom-up + Open source (Richterich, 2020)

Bringing the ‘right’ innovation at the ‘right’ place at the ‘right’ time
• Mobile vaccination clinics in food production facilities

Building on pre-pandemic digital capabilities of government and citizens
• Need to move beyond ‘users’

Audrey Tang, Taiwan Digital Minister
https://t.ly/Jgci


