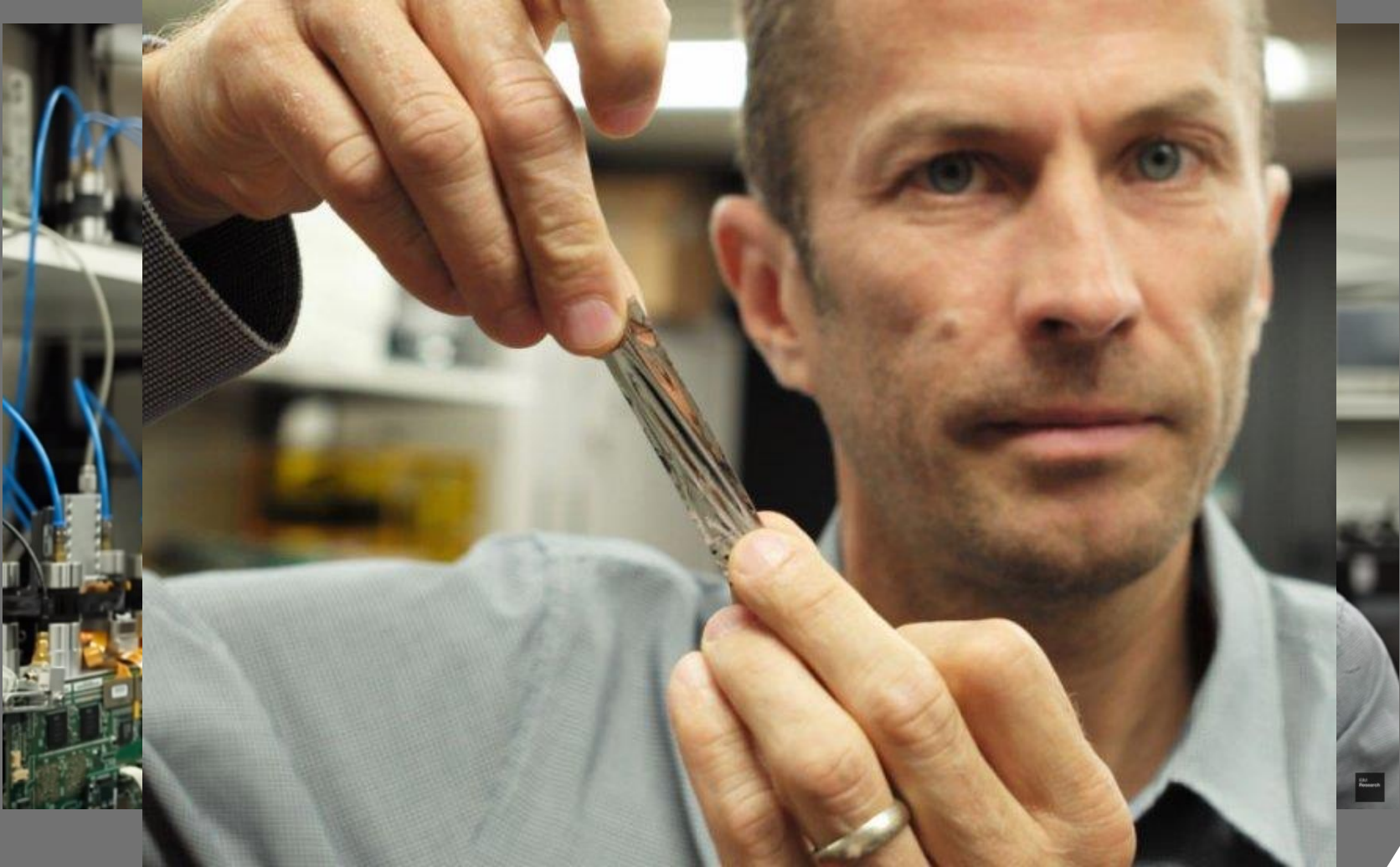




DIGITAL HEALTH: CHALLENGES AND OPPORTUNITIES

Reinforcing knowledge-sharing at the heart of the digital
health ecosystem

*Peter Wyckoff
OECD Health Division
9 May 2018
Luxembourg*



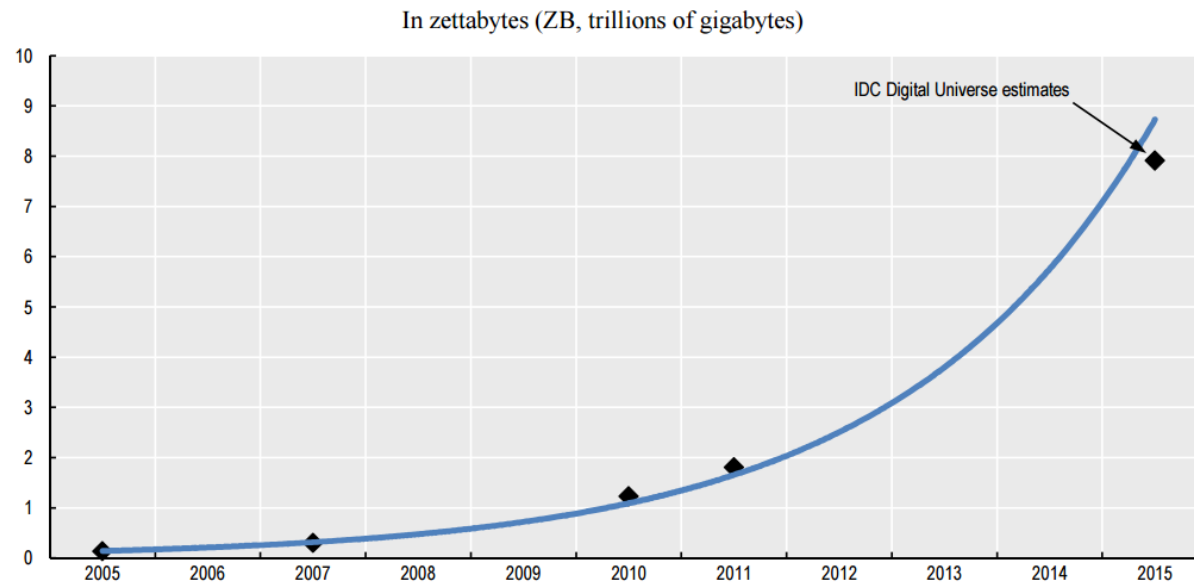


More and more data

“...it is estimated that as much data is now generated in just two days as was created from the dawn of civilization until 2003”

Shah & Pathak. Harvard Business Review 2014

Estimated worldwide data storage





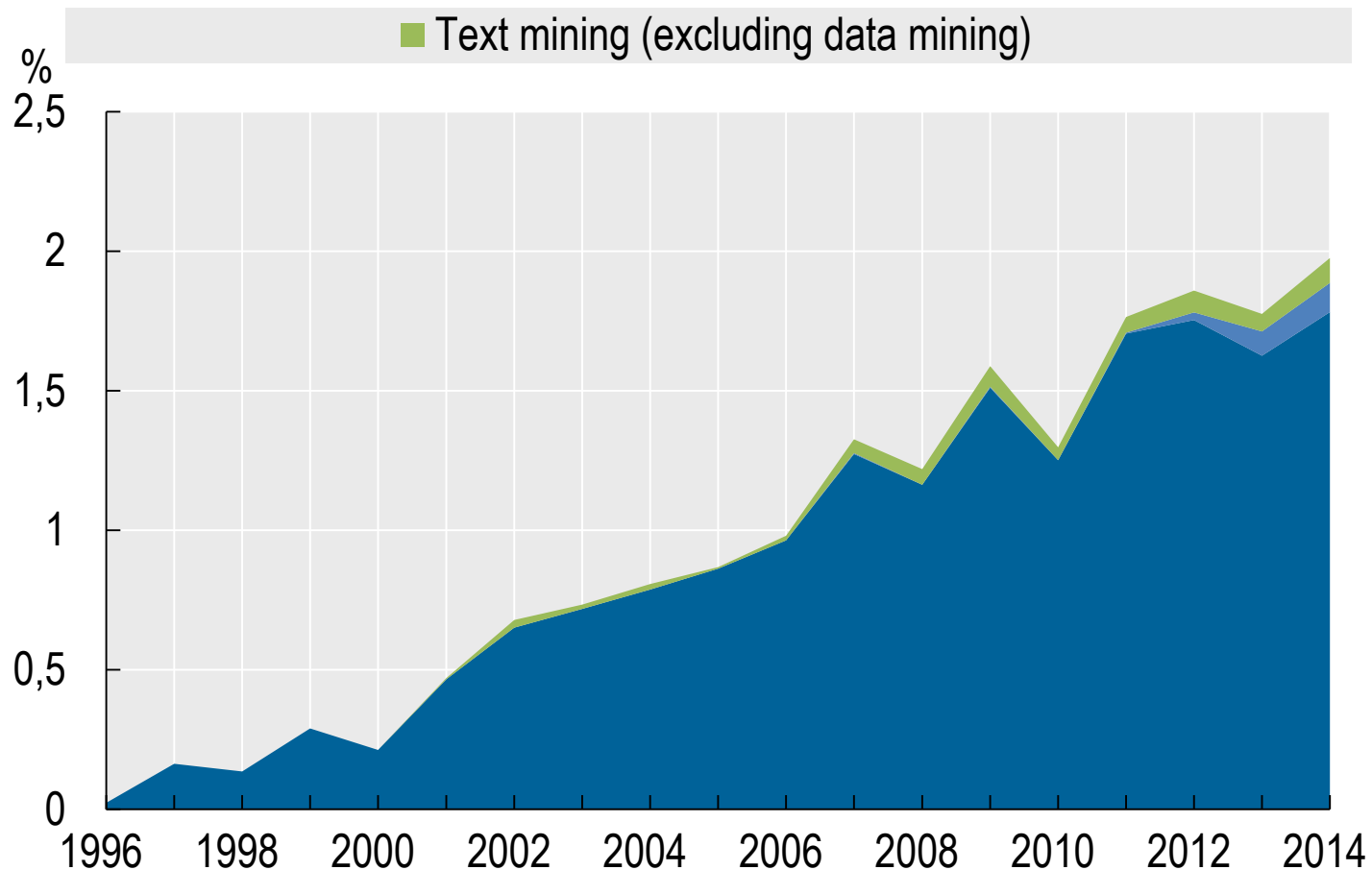
More digital inputs





More insights

Data mining-related scientific articles, 1995-2014

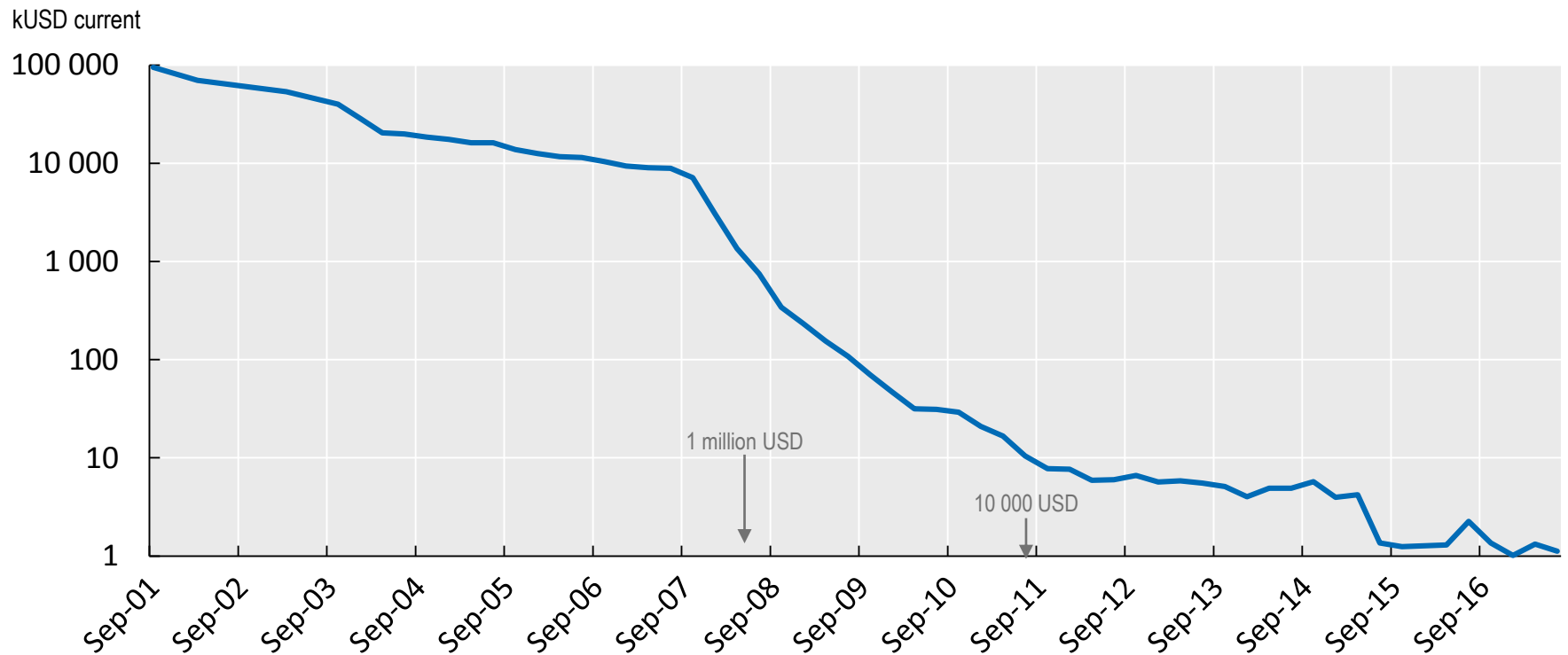


Source: OECD *Measuring the Digital Economy: A New Perspective*



More applications

Estimated Cost of Genome Sequencing

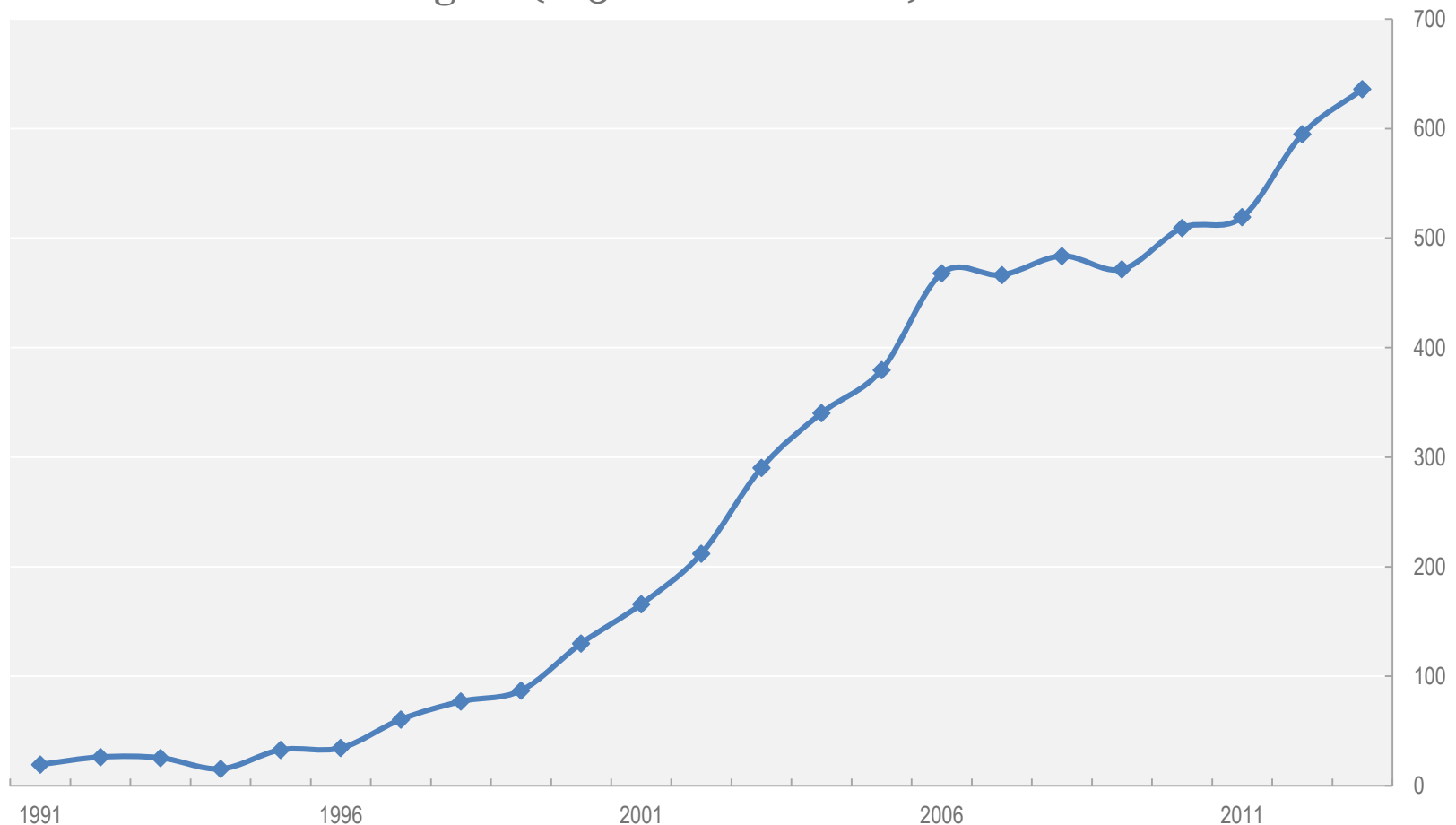


Source: OECD *Measuring the Digital Economy: A New Perspective*



And increasingly, machine-learning

Number of machine-learning and AI patents in medical technologies (IP5 Patent families)



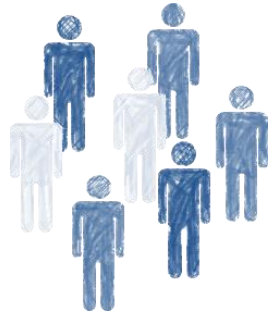


OPPORTUNITIES



Many factors are pushing for data-based health

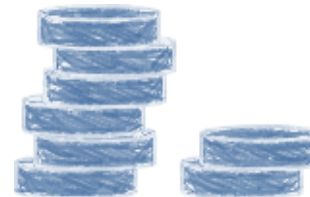
Patient demands
for modern
experiences,
responsiveness,
communications and
transparency



**Increasingly
complex care
needs**
make delivering
high quality care
more challenging

```
{ 1100101011000
  0110111010100
  0011101010101
  0011110100000
  0111010101000
  1111010100111 }
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**New therapies
and better
research**
rely on our ability
to make better use
of data

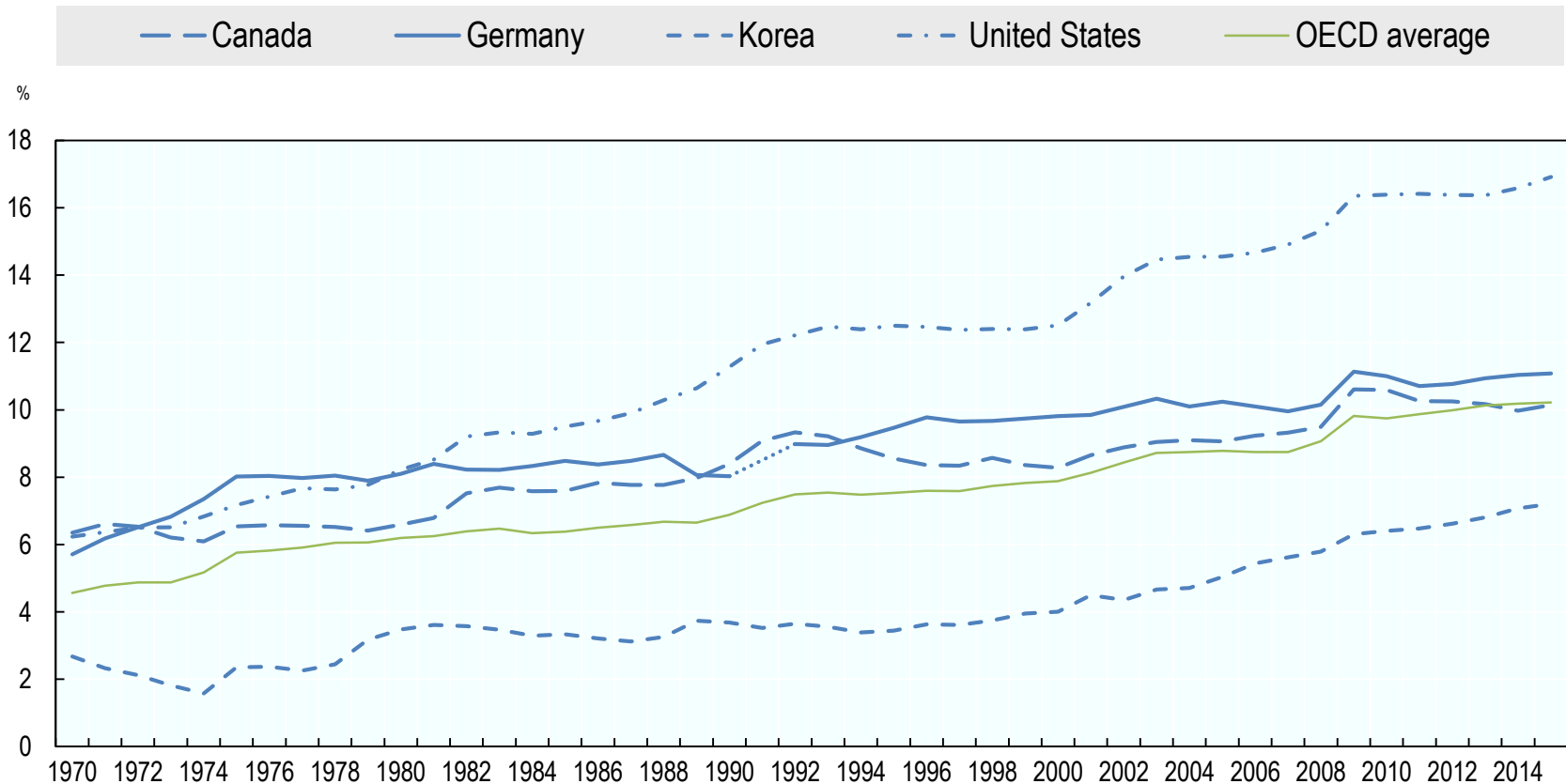


**Tight fiscal
conditions**
put pressure on
health systems to
deliver value for
money



Tight Fiscal Conditions

Percent of GDP spent on health care in selected countries, 1970-2015



Note: The OECD average includes 18 countries.

Source: *OECD Health Statistics 2016*.



Success stories from around the world

UK Biobank

Broad and deep data to prevent, diagnose and treat diseases

THL (Finland)

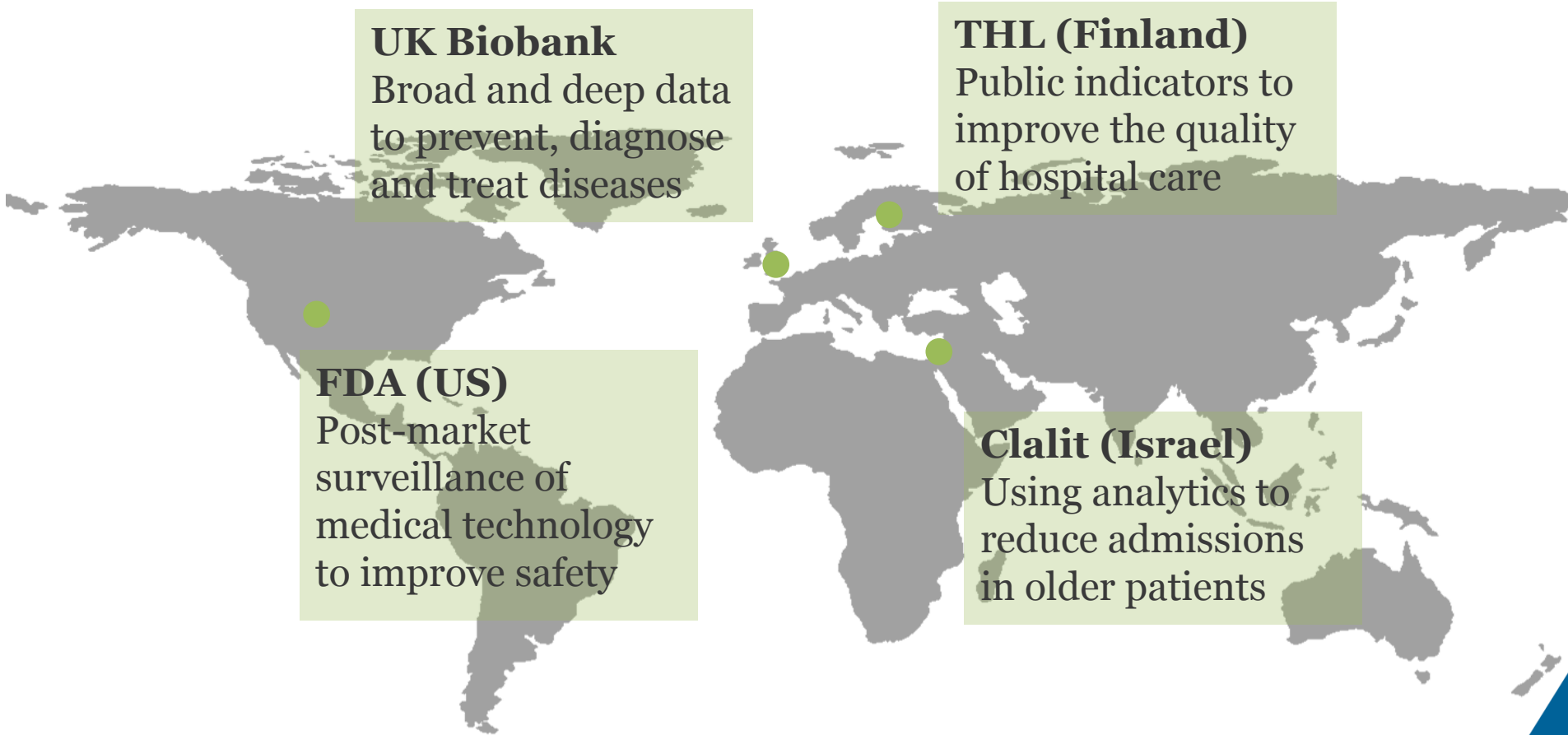
Public indicators to improve the quality of hospital care

FDA (US)

Post-market surveillance of medical technology to improve safety

Clalit (Israel)

Using analytics to reduce admissions in older patients





Key benefits to better data use



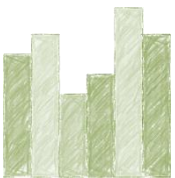
Clinical practice improvement

- Faster access to critical information
 - Improve clinical decision making
 - Coordinate care across settings
-



System management

- Monitor care quality
 - Improve technical and allocative efficiency
 - Reduce waste
-



Surveillance

- Faster detection and response to public health emergency
 - Monitor performance
 - Inform policy
-



Research & innovation

- Statistical power
- Vast and varied datasets
- Better 'real world' sampling

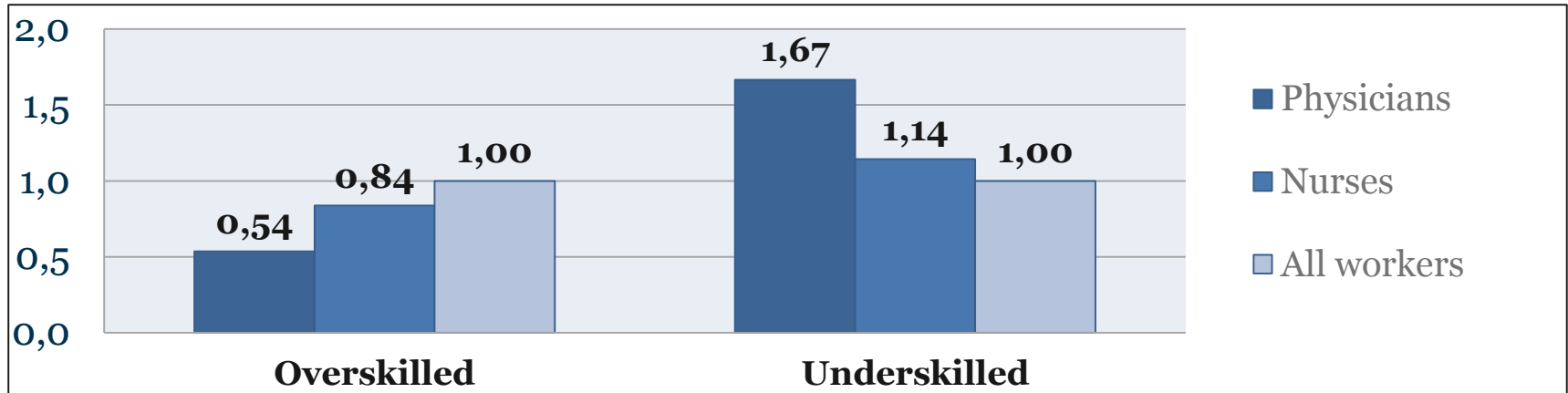


CHALLENGES



Skills

Skills mismatch of physicians, nurses and all workers



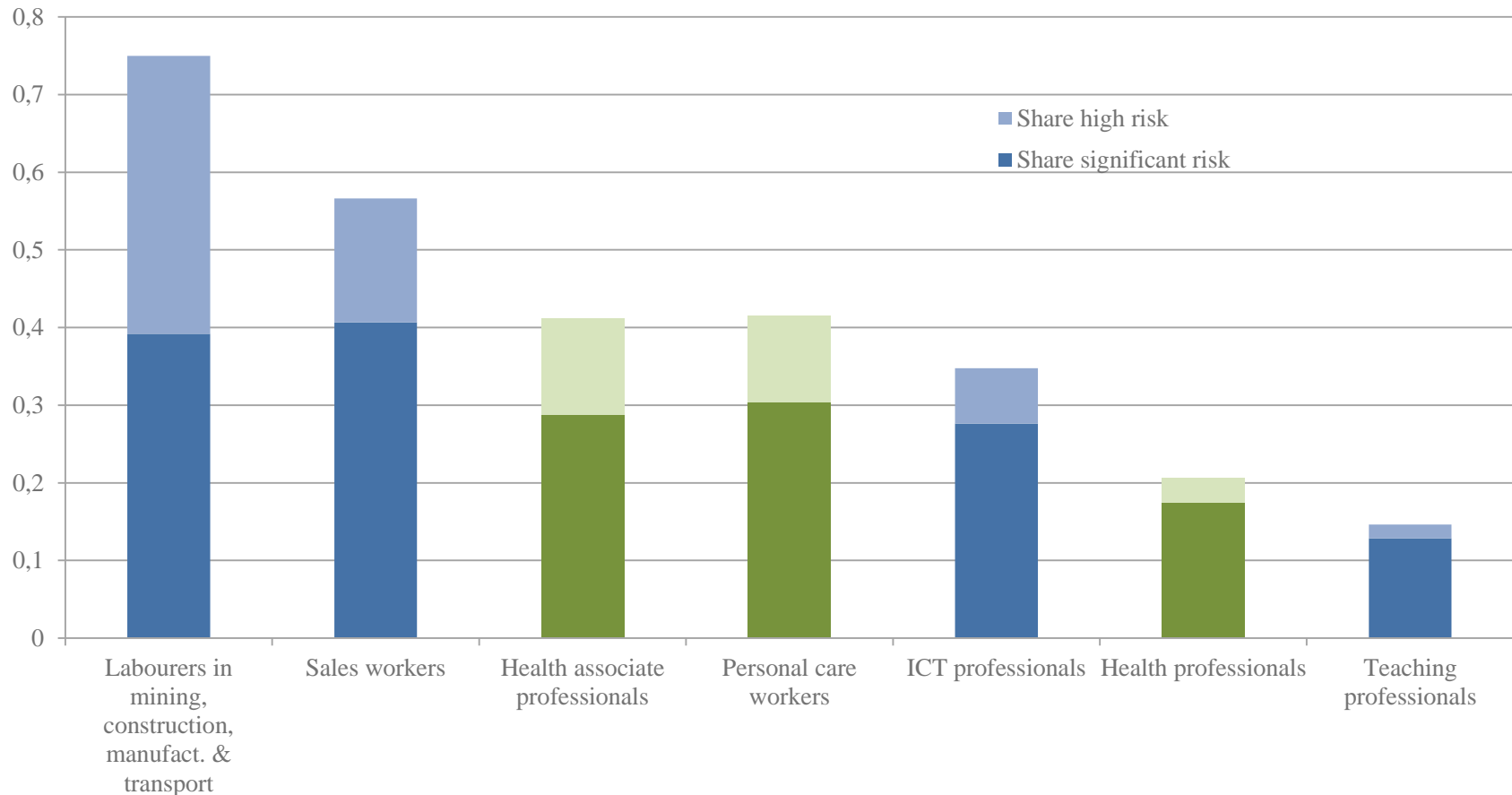
Skills mismatch among nurses by level of education





Digitalisation will disrupt the health workforce

Job automatability for select occupation fields (using European data)

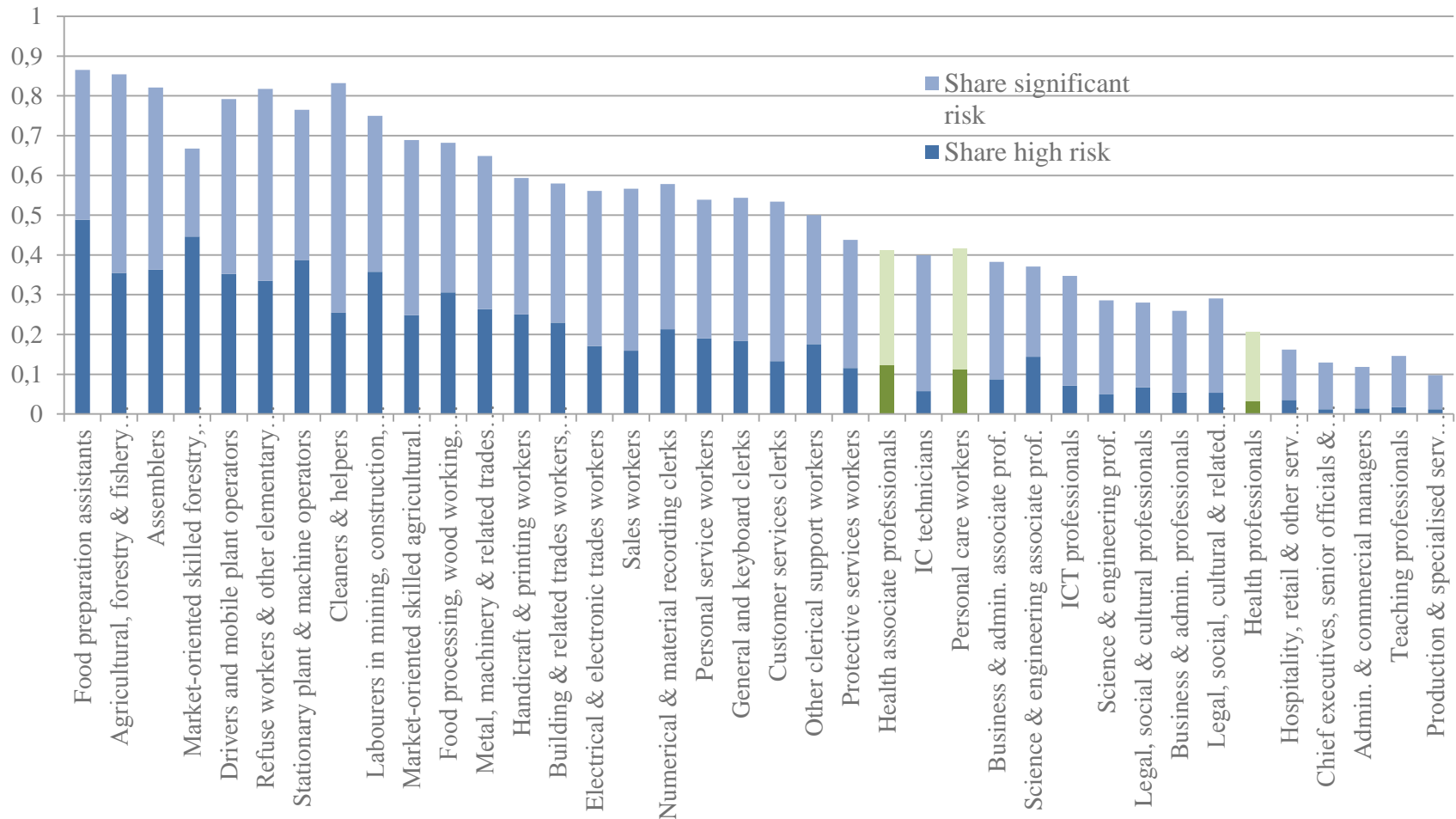


Source: Nedelkoska, L. and G. Quintini (2018), "Automation, skills use and training", *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris



(though not as much as some other industries)

Job automatability for ~40 occupations (using European data)





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Health

Care.data: How did it go so wrong?



Nick Triggie
Health correspondent

🕒 19 February 2014 | Health | 💬 354



There comes a point when the weight of criticism becomes so much that the dam bursts

More from Nick

☰ 🔍 **FINANCIAL TIMES**

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Digital health [+ Add to myFT](#)

Fears raised over Google's DeepMind deal to use NHS medical data

Academics concerned over company's access to private records for mobile app



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Could only
to predict

POLICY

ONE STEP TOO FAR FOR LEGENDARY DANISH TRANSPARENCY

🕒 25 MARCH, 2015 👤 JENS DEGETT 💬 6 COMMENTS

Danish regional health authority have collected data from patients illegally in the past seven years, in a scenario reminiscent of George Orwell's 1984 ★¹

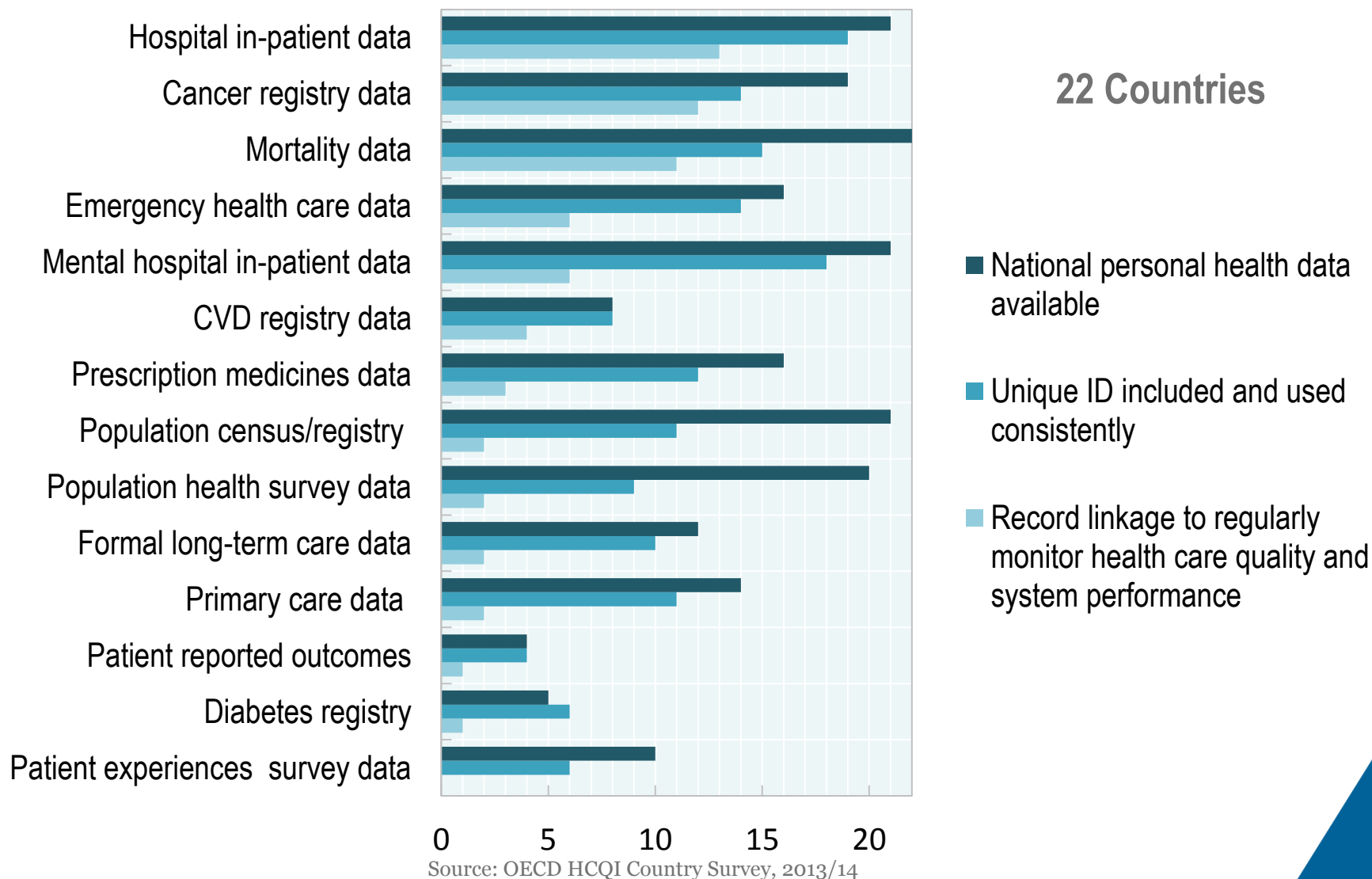


Many countries are still struggling on the digital governance side

- Most countries have national data covering the key elements of the health care pathway & processes
- But, legal and policy prohibitions may be out of date
- Often data are in silos. Few countries are linking across databases for research or to improve the quality of care
- Lack of public transparency
- Lack of leadership and investment



Little linkage and quality monitoring beyond hospital data & cancer registries





Recommendation of the OECD Council on Health Data Governance



THE NEXT GENERATION of **HEALTH REFORMS**

OECD Health Ministerial Meeting

17 January 2017



Data Governance Framework

8 key mechanisms

1 Health information system

2 Legal framework

3 Public communication plan

4 Certification or accreditation of processors

5 Project approval process

6 Data de-identification steps

7 Data security and management

8 Data governance review cycle


Evaluate benefits and risks of proposed data uses

Benefits

- Rights to health
- Societal values toward health
- health care quality & efficiency
- scientific discovery & innovation

Risks

- Rights to privacy
- Societal trust in government & institutions
- Societal values toward privacy & sharing data



Take informed decisions to process personal health data

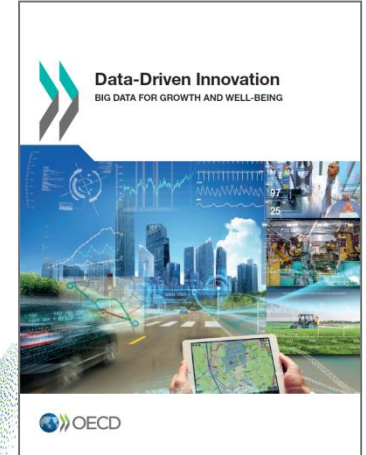
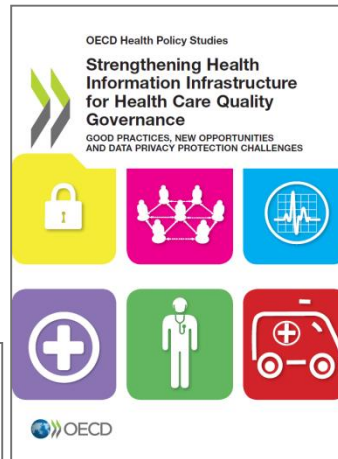


In summary

- Trends
 - Ideal virtuous cycle of increased digital inputs
=> data => insights => applications
- Summarized some of the **pressures and possible outcomes** of increased digitalisation
- Highlighted some challenges and potential solutions on: **workforce engagement and skills; effective data governance**



The OECD is working to move this agenda forward



OECD Knowledge-Based Health Systems, 2019



Thank you

Contact: peter.wyckoff@oecd.org

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The organisation and performance of health systems:

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A series of country reports benchmarking country efforts to improve quality of care:

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