

Joao Almeida

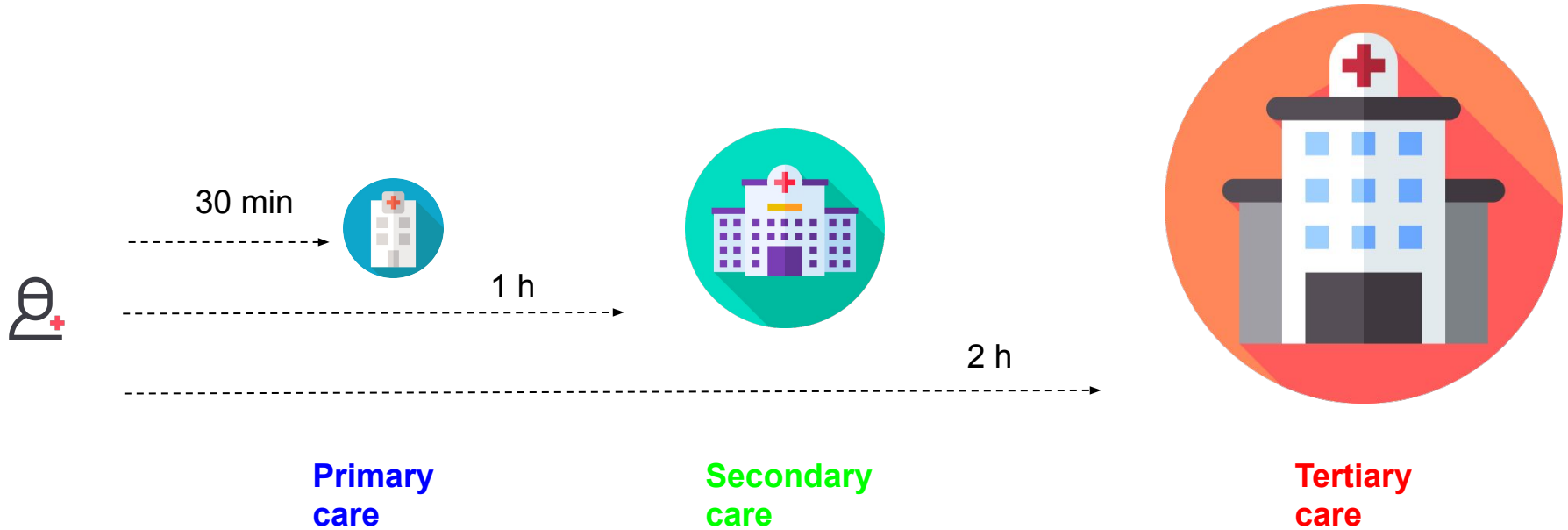
Visiting professor at Aalto University for research collaboration in Prof. Fabricio Oliveira's research group

SAL Monday seminar (23 January)

Design for universal coverage health care systems at minimum cost

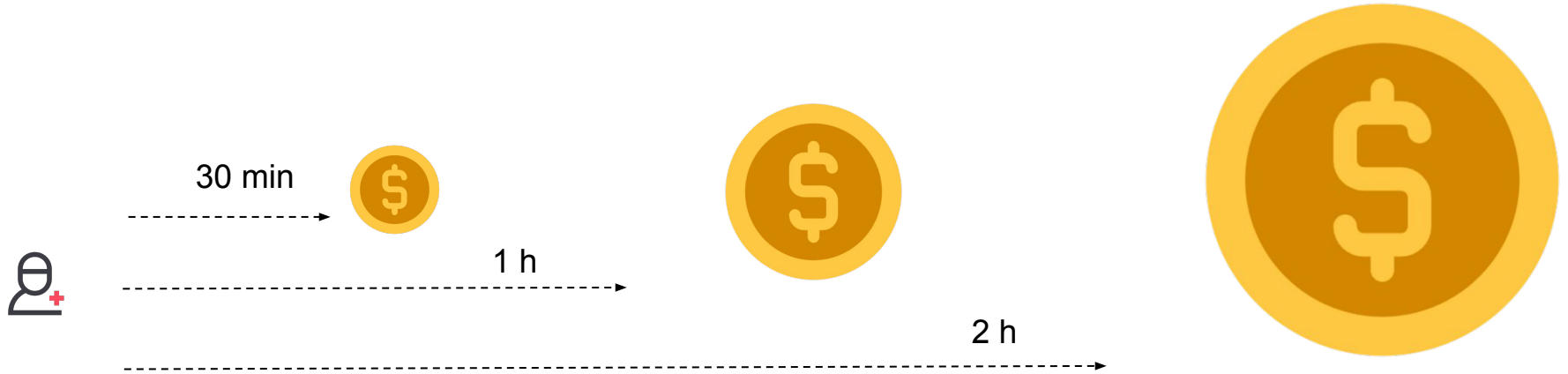
Welfare states invest in citizens' health care according to the amount they can afford.

Design for **universal coverage** health care systems at minimum cost



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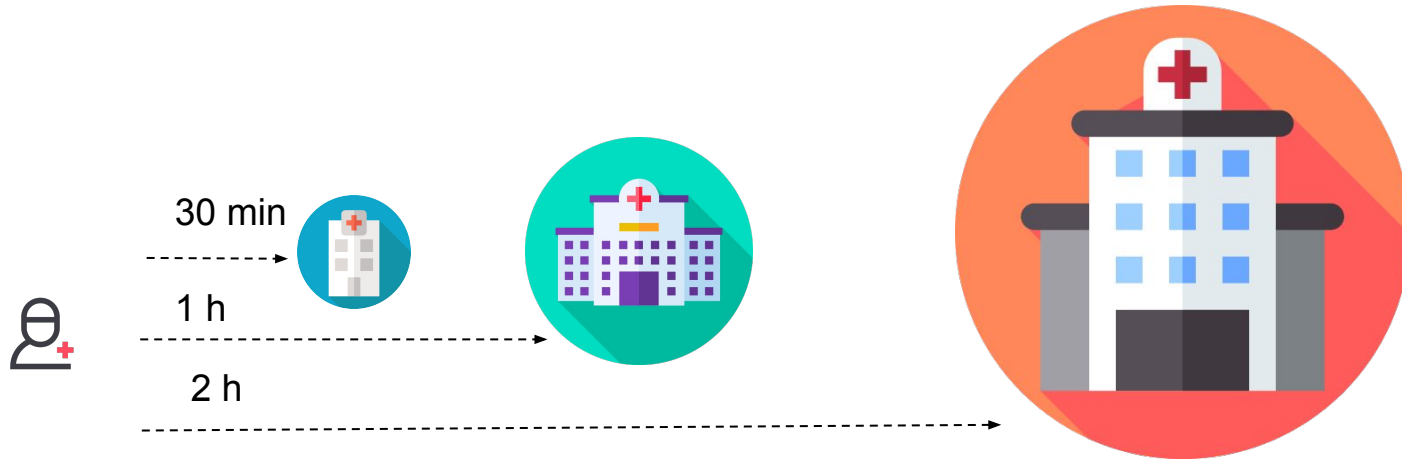
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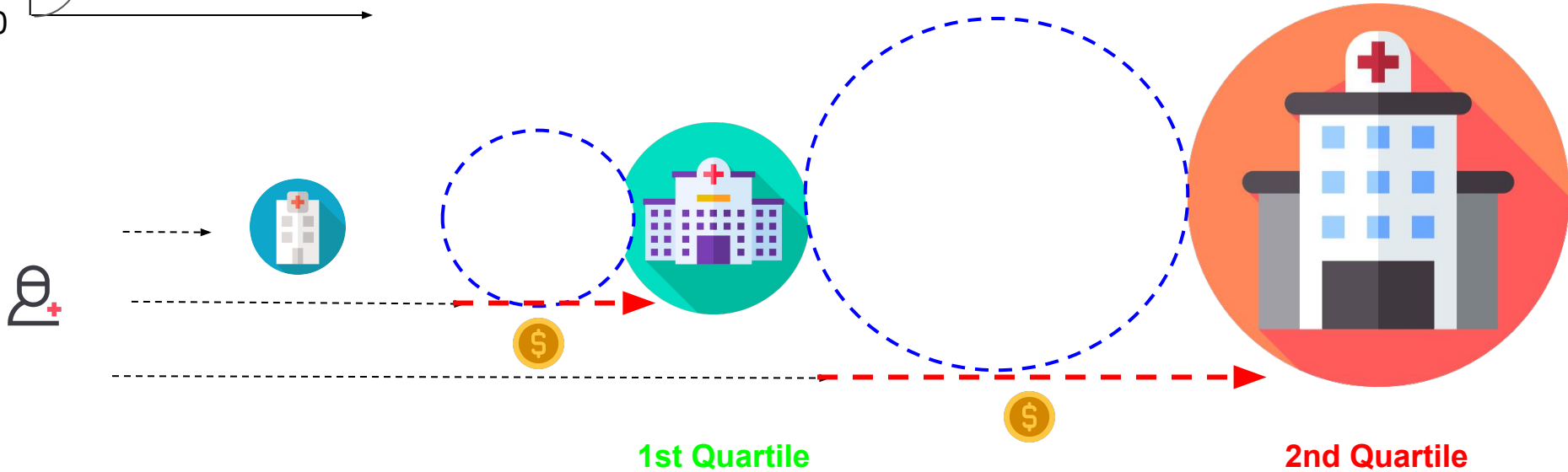
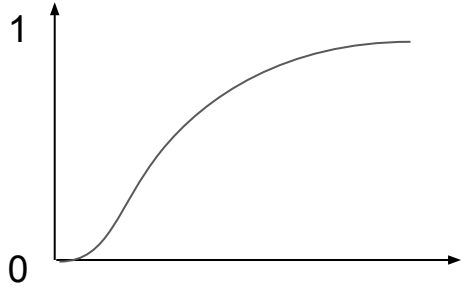
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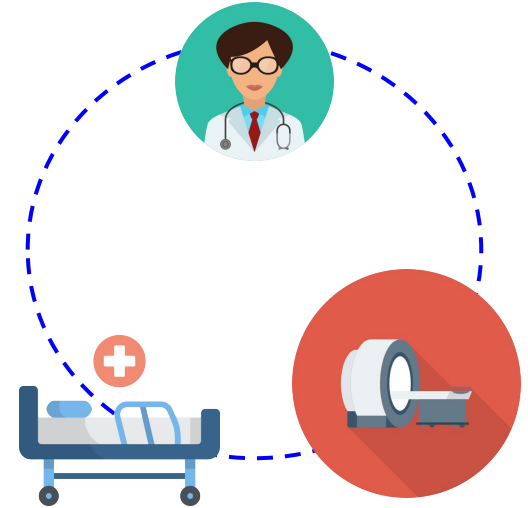
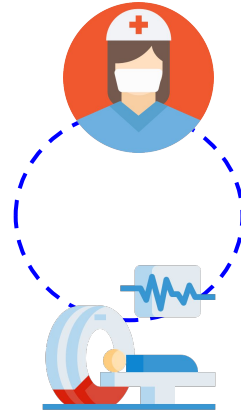
Considering a **minimum population** on destination municipality...

Design for universal coverage health care systems at minimum cost



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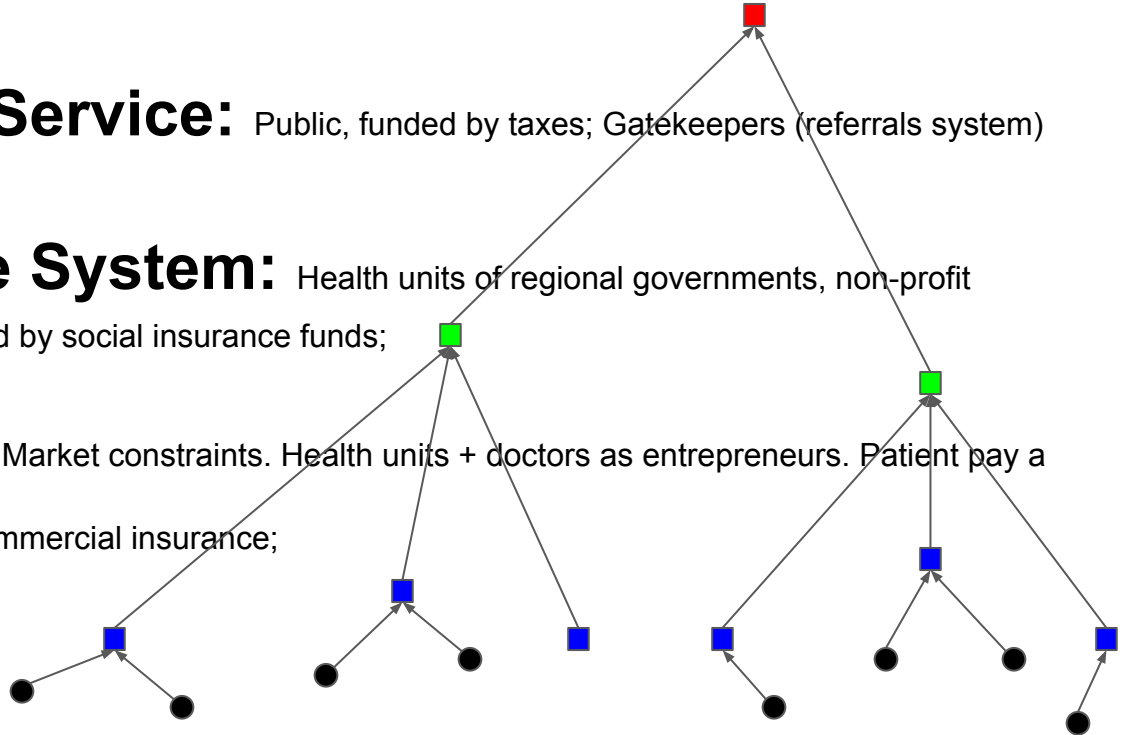
Resources: Doctors, Nurses, Other cadres, CHW+LTC, Beds, MRI, CT scanners, Mammography, Radiotherapy

Health care systems

National Health Service: Public, funded by taxes; Gatekeepers (referrals system)

Social Insurance System: Health units of regional governments, non-profit organisations, private units. Funded by social insurance funds;

Private System: Market constraints. Health units + doctors as entrepreneurs. Patient pay a fee-for-service, out-of-pocket or commercial insurance;



In practice, most countries combine more than one type of health care system

Increasing cost of health care

Personal services: Not plausible of much rationalisation, as industrial production

Technological Innovation: New machines, products (higher costs), not process designs (that reduce costs);

Ageing society: More comorbidity, ill patients (increase costs);

Motivation: Design country-wide health care system for better use of resources considering population accessibility

Aggregate data

Demand and supply projection for 2030:

4.07 physicians / 1,000 people

12.73 nurses / 1,000 people

6.27 all other cadres / 1,000 people

4.88 CHW + LTC / 1,000 people

4.5 beds / 1,000 people

27 CT scanners / 1,000,000 people

22 MRI units / 1,000,000 people

19 Mammographs / 1,000,000 people

10 Radiography / 1,000,000 people

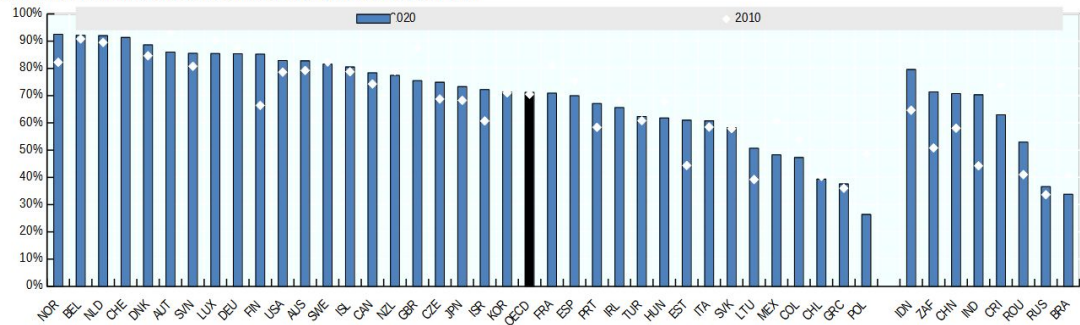
[Government at a Glance 2021 - © OECD 2021](#)

14.1 Figure 14.1. Citizen satisfaction with the health care system, 2010 and 2020

Version 1 - Last updated: 08-Jul-2021

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14.1 Citizen satisfaction with the health care system, 2010 and 2020



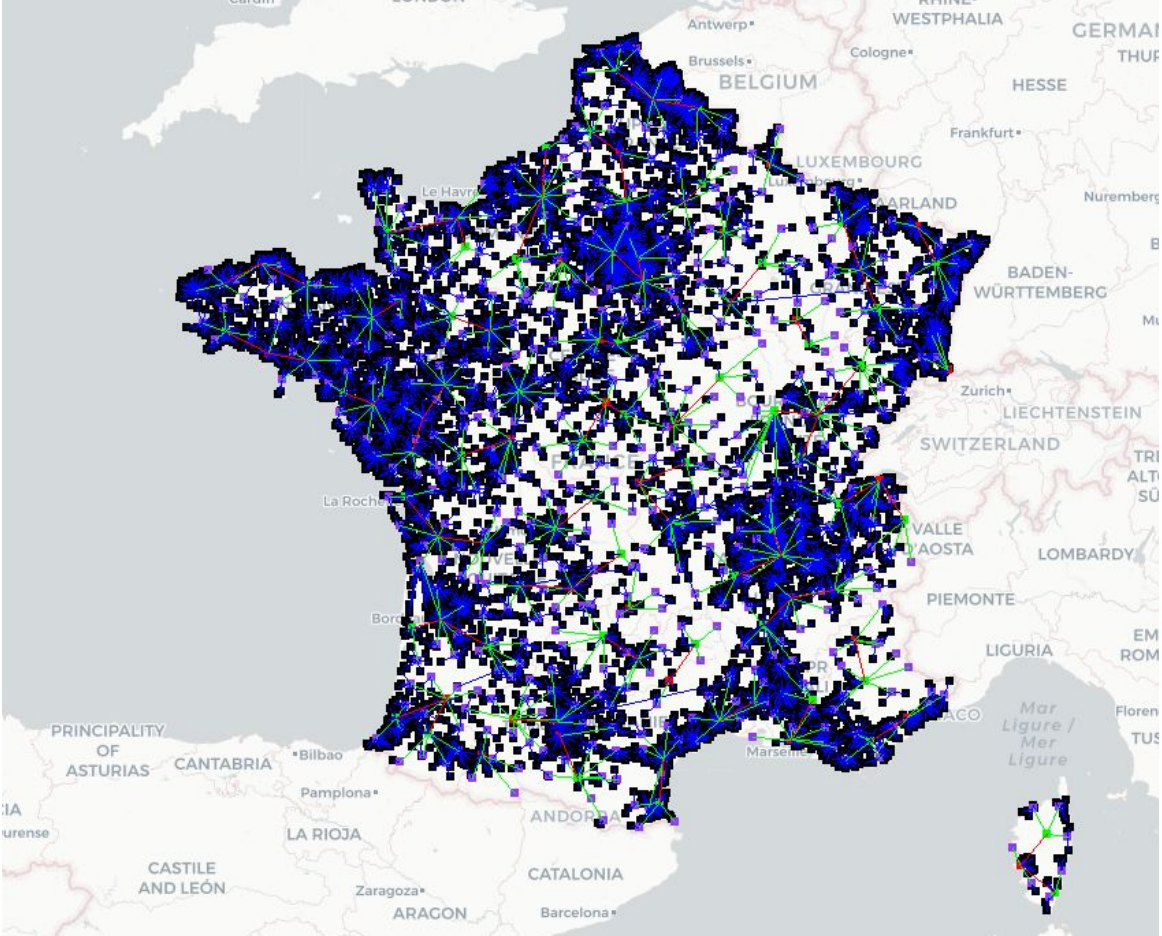
Source: Gallup World Poll 2020 (database).

Note: Data for Estonia are for 2011 instead of 2010. Data for Iceland, Norway, Switzerland are for 2012 instead of 2010. Data for Czech Republic are for 2018 instead of 2010.

Health expenditure: 10.5% of GDP (10 best health care systems)

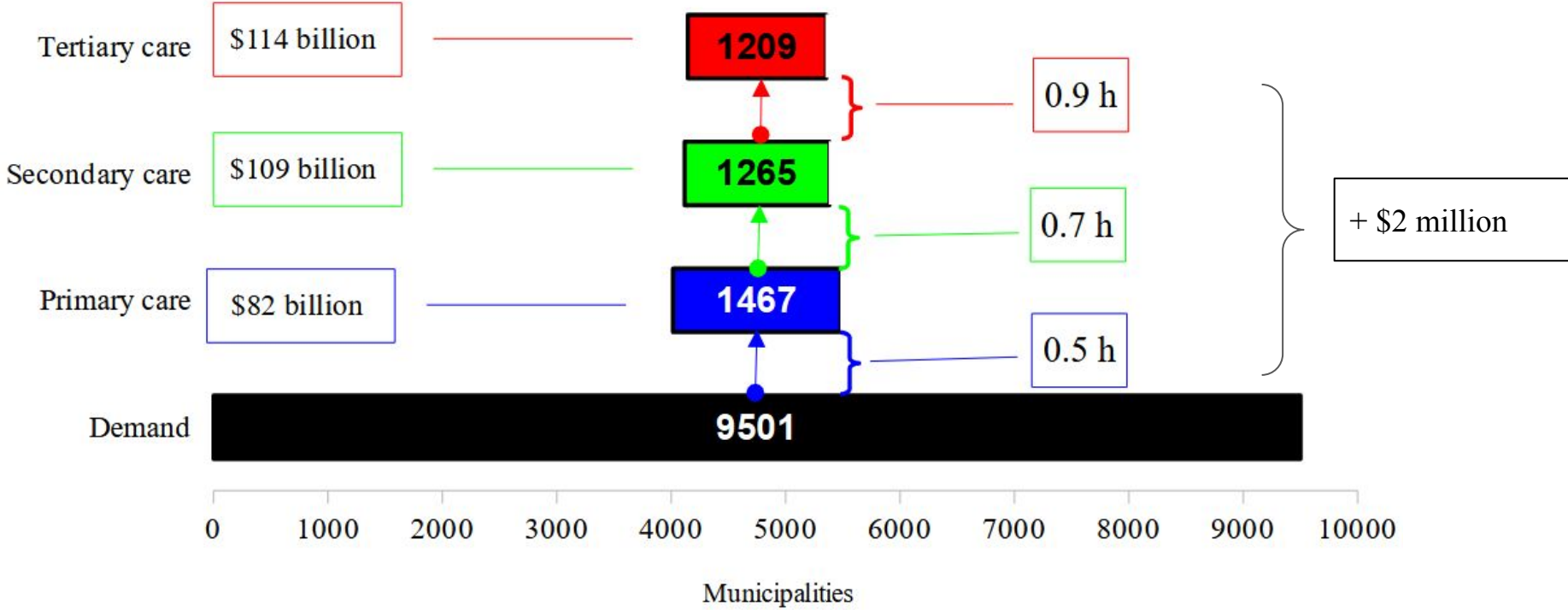
Primary, secondary and tertiary proportion: According to current practice

France

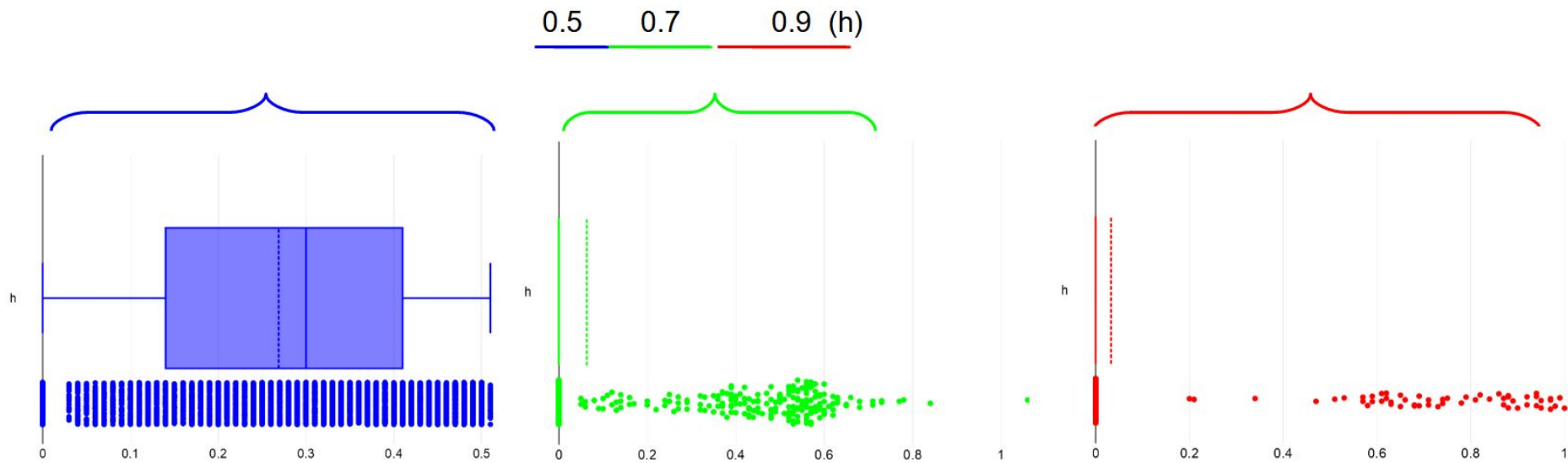


France

Minimum cost universal health care - France

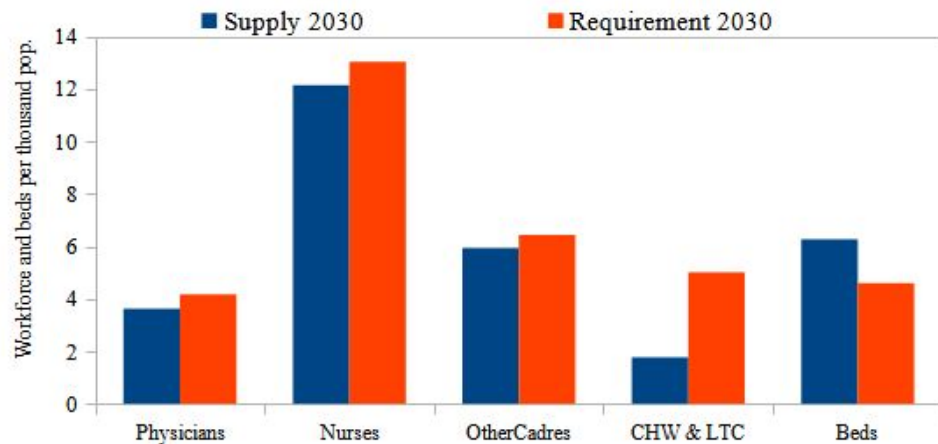


France

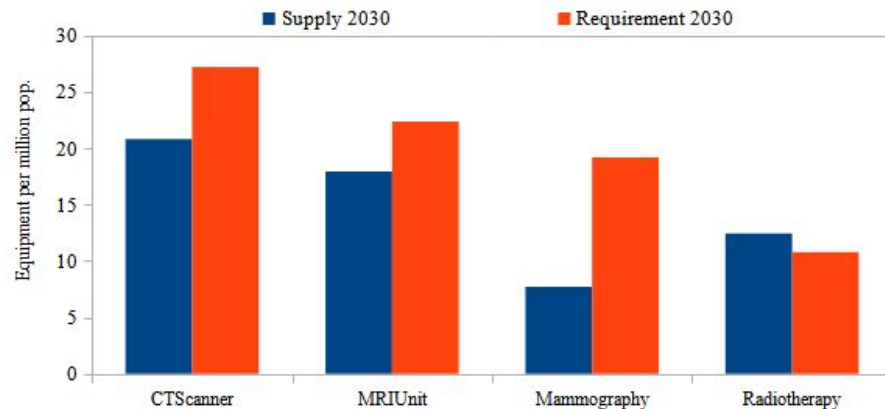


France: 85% public

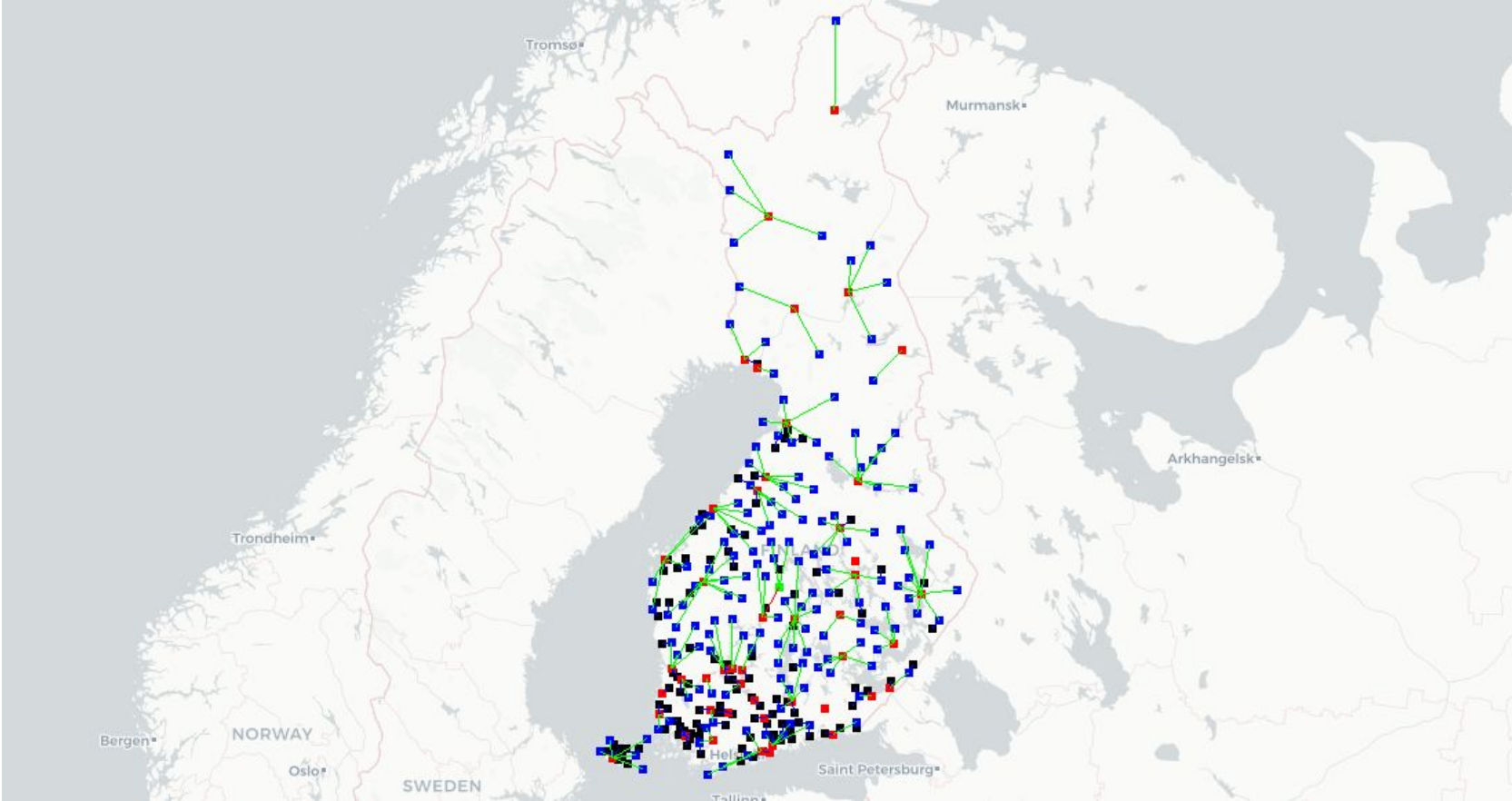
Workforce for minimum cost universal coverage health care - France



Equipment for minimum cost universal coverage health care - France

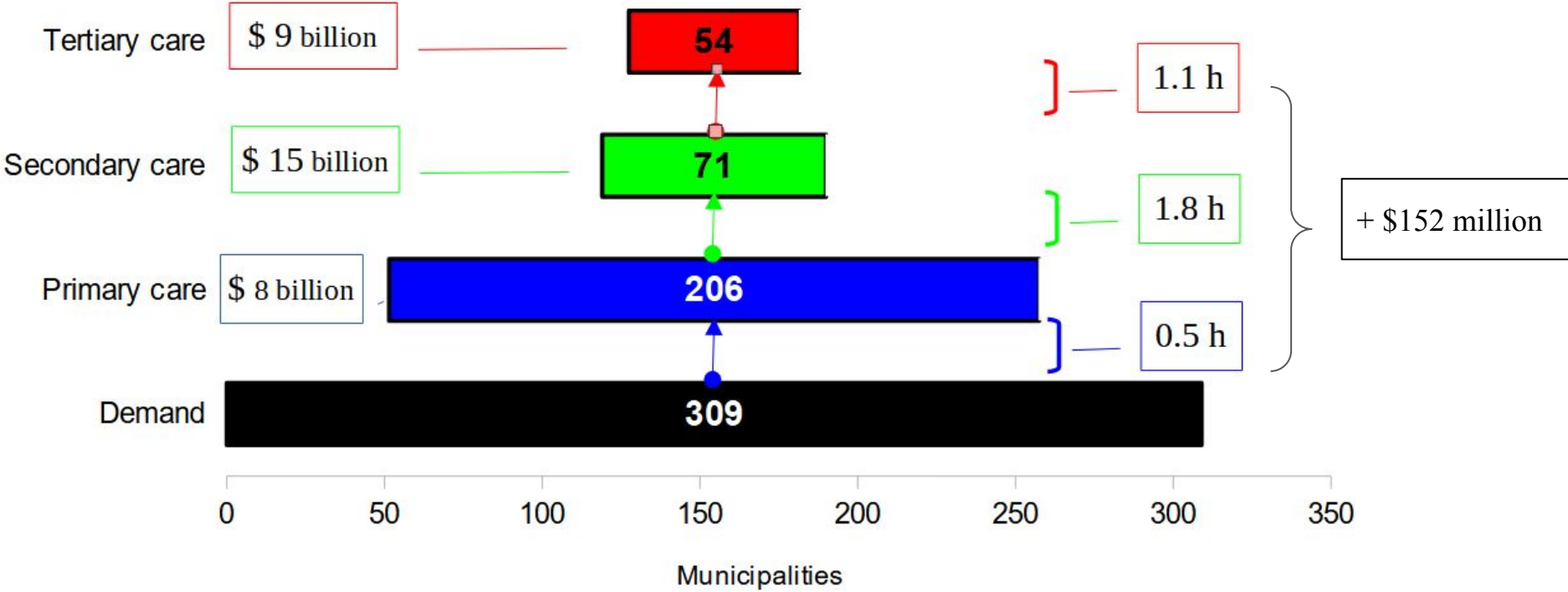


Finland



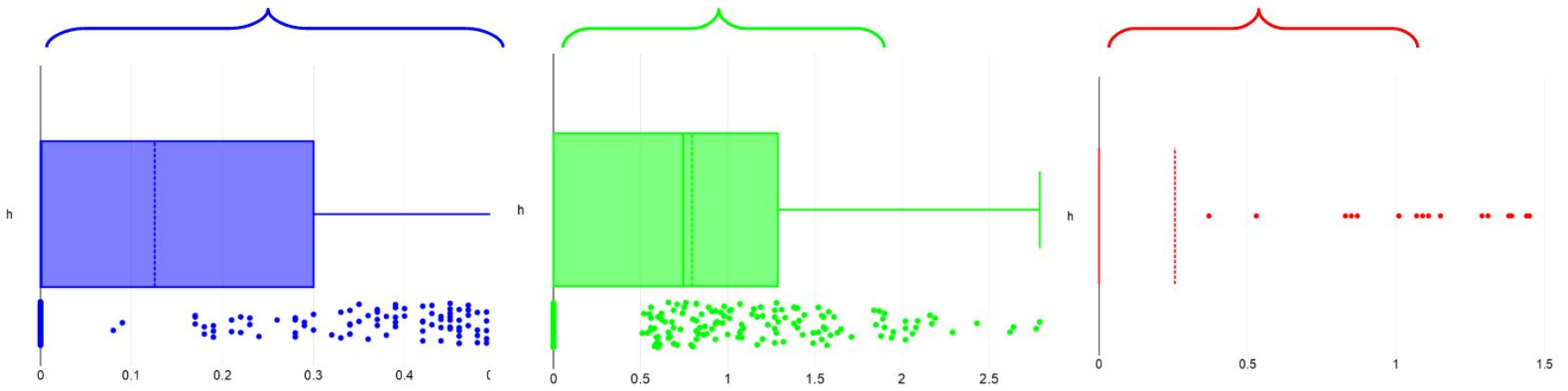
Finland

Minimum cost universal health care - Finland



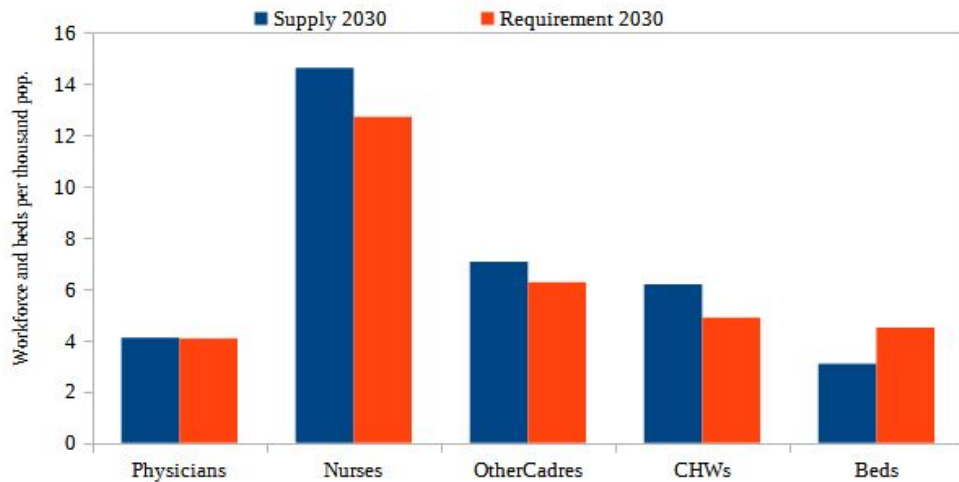
Finland

0.5 1.8 1.1 (h)

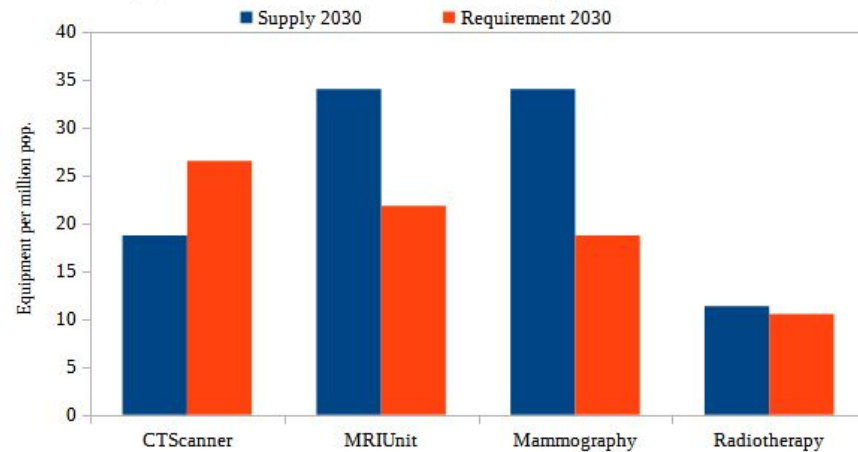


Finland: 79% public

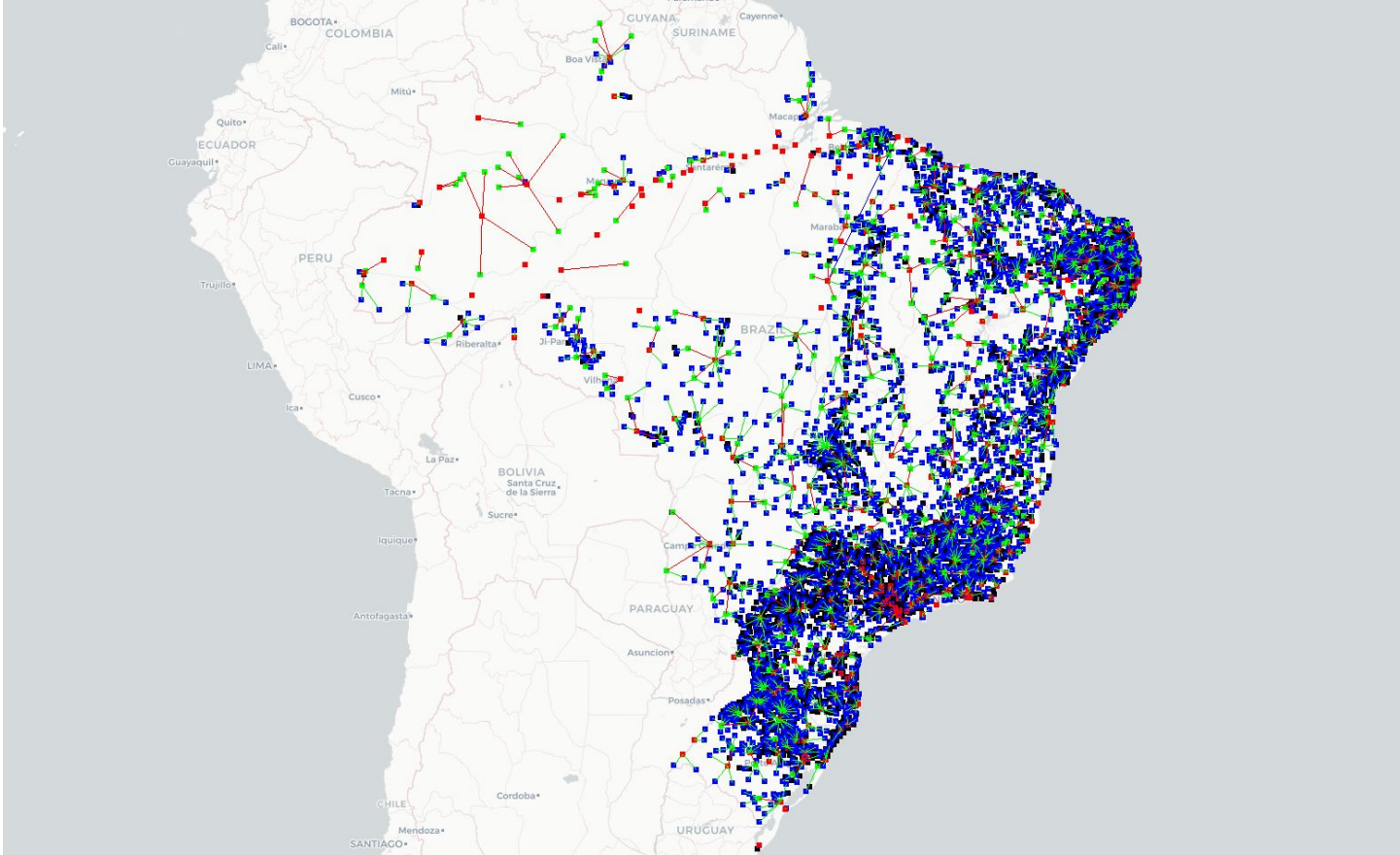
Workforce for minimum cost universal coverage health care - Finland



Equipment for minimum cost universal coverage health care - Finland

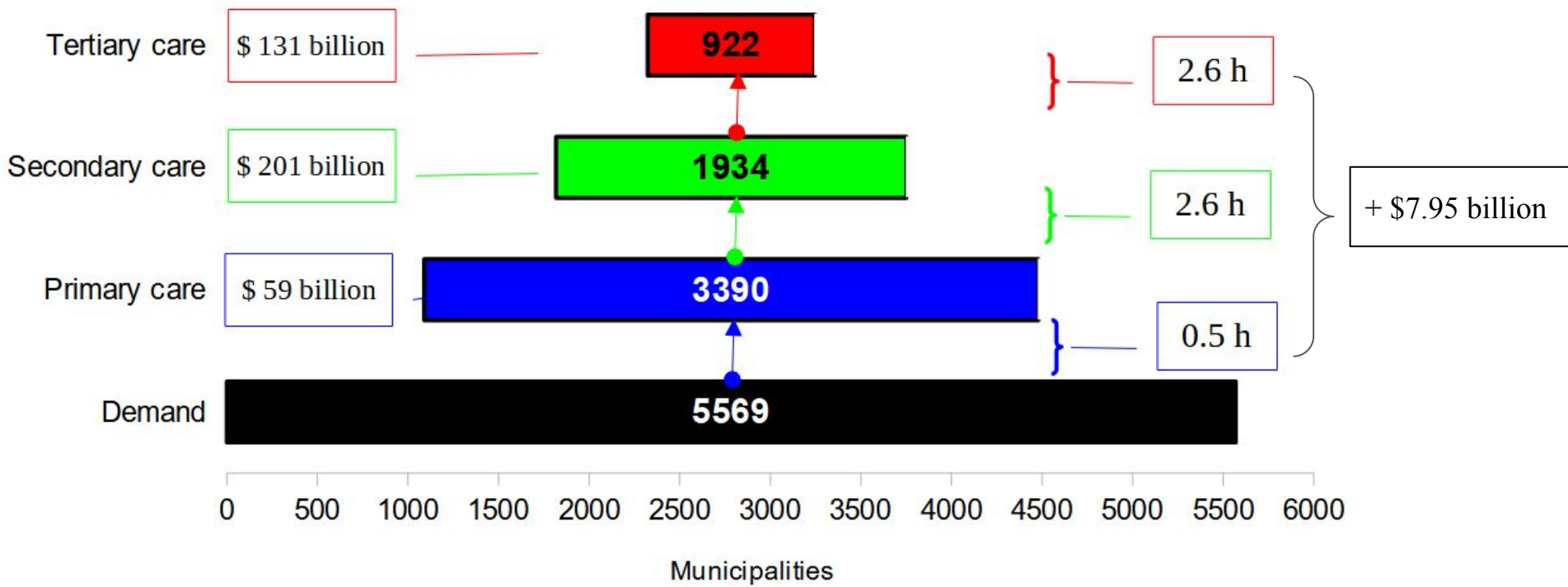


Brazil



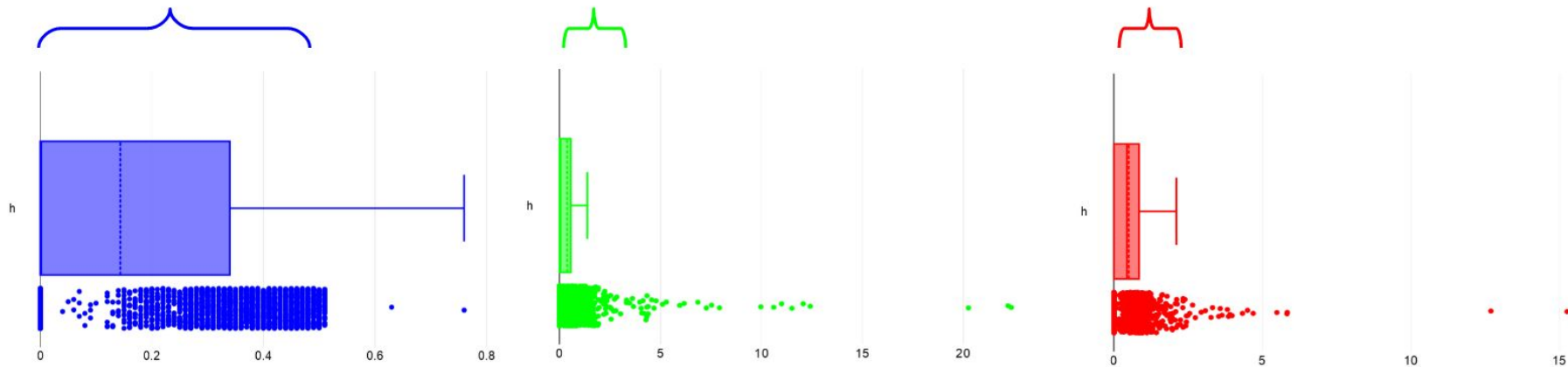
Brazil

Minimum cost universal health care - Brazil



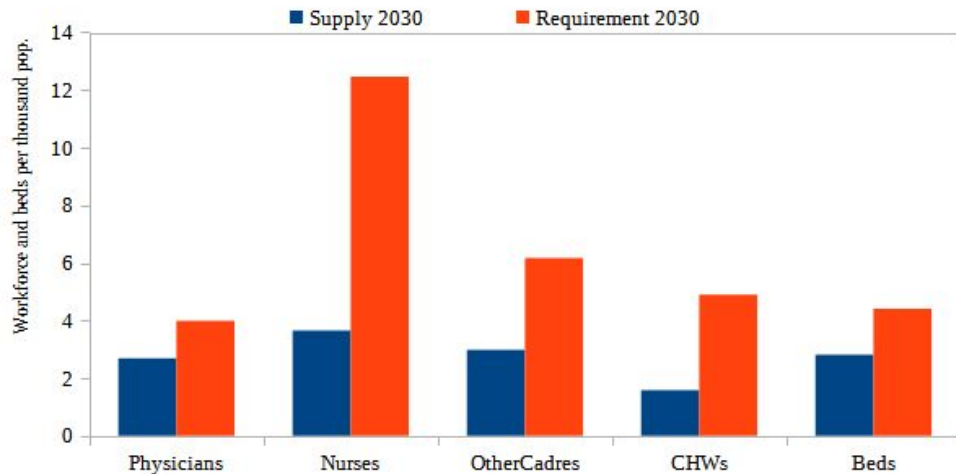
Brazil

0.5 2.6 2.6 (h)

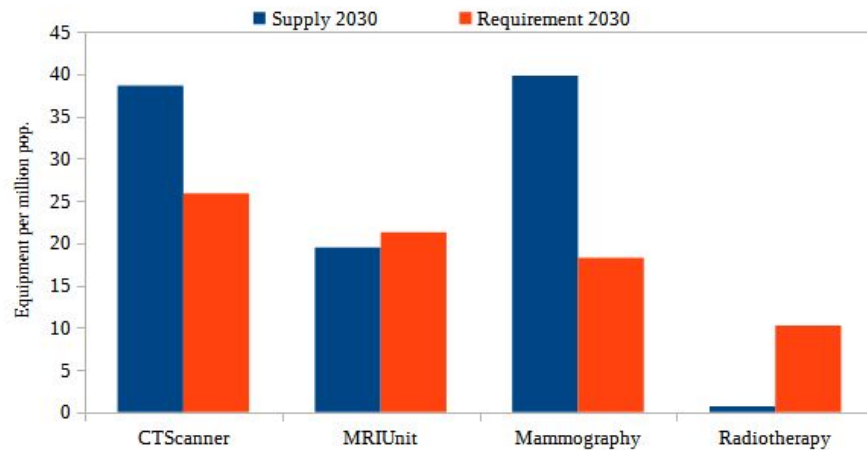


Brazil: 41% public → For 85/15: Increase 5% of GDP on public health care.

Workforce for minimum cost universal coverage health care - Brazil



Equipment for minimum cost universal coverage health care - Brazil



Kiitos!

Thank you, Fabricio and all from the Department of Mathematics and Systems Analysis of Aalto University!

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