

New Zealand's Health System Under the Microscope

Dr/Prof. Victor Luca
Scientist



22-Oct-20

Health System of the late 19th Century



19th century, the Gladstone bag



What is a Modern Health System?

Prevention

Diagnosis

Treatment/Cure

A modern medical system is an extremely complex machine with many moving parts and involving many different disciplines & sub-disciplines:

e.g. Oncology, immunology & allergy, hematology, dermatology, cardiology, urology, anesthesiology, endocrinology, gastroenterology, rheumatology, nephrology, neurology, gynecology, pathology, psychiatry ...

and myriad equipment and instrumentation for diagnosis and therapy.



Chronology of New Zealand Health System

Our health system has been in constant evolution as health knowledge and science has improved and political and economic ideologies have come and gone.

1840 - Treaty of Waitangi 1840, New Zealand becomes a nation.

1840 - First case of Smallpox.

1841 - First colonial surgeon appointed.

1842 - Harbor act to provide regulation of harbors for quarantine.

1845 - NZ land wars.

1847 - First public hospital.

1848 - Maori begin to use hospitals.

1849 - Release of a pamphlet on smallpox in Māori.

1851 - First census.

1854 - Scarlet fever and measles outbreaks.

1857 - Appointment of qualified doctors solely as Native Medical Attendants.

...

1938 - Social security act of 1938 lays the foundations for NZ's **public health system**.

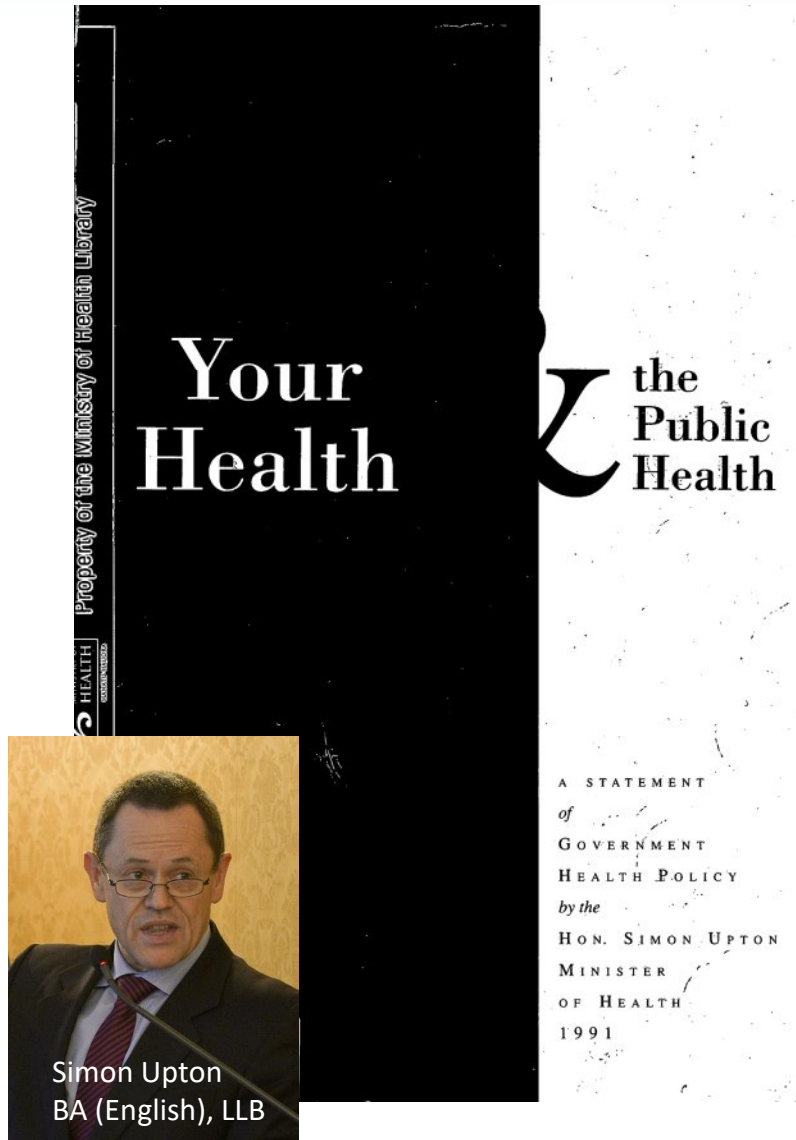
1983 - **Area Health Boards Act** passed. 70% of expenditure was allocated by these boards.
Dual system of public-private provision developed.



[Chronology of the New Zealand Health System](#)

1991 – Health Reforms

Green and White Paper 'Your Health and the Public Health'



Attempt to create efficiencies by 'mimicking' a private market in the public sector.

Unsuccessful because of community and professional skepticism.

Introduction of 'user pays' for hospital stays in the early 1990s drew public ridicule and was abandoned.

Encouragement of private insurance models, but these received critical opposition.

The corporate model failed to improve hospital financial performance and as early 1996 the government's own monitoring agency reported that "the pace of performance improvement seems ... to have weakened since the reforms"

Barnett, P. & Bagshaw, P. Neoliberalism: what it is, how it affects health & what to do. *NZ Medical Journal* 2020, 133(1512), 76.

1984-1990 – Rogernomics reforms of the Lange government.

Roger Douglas - “Once the program begins to be implemented, don’t stop until you have completed it. The fire of opponents is much less accurate if they have to shoot at a moving target”.

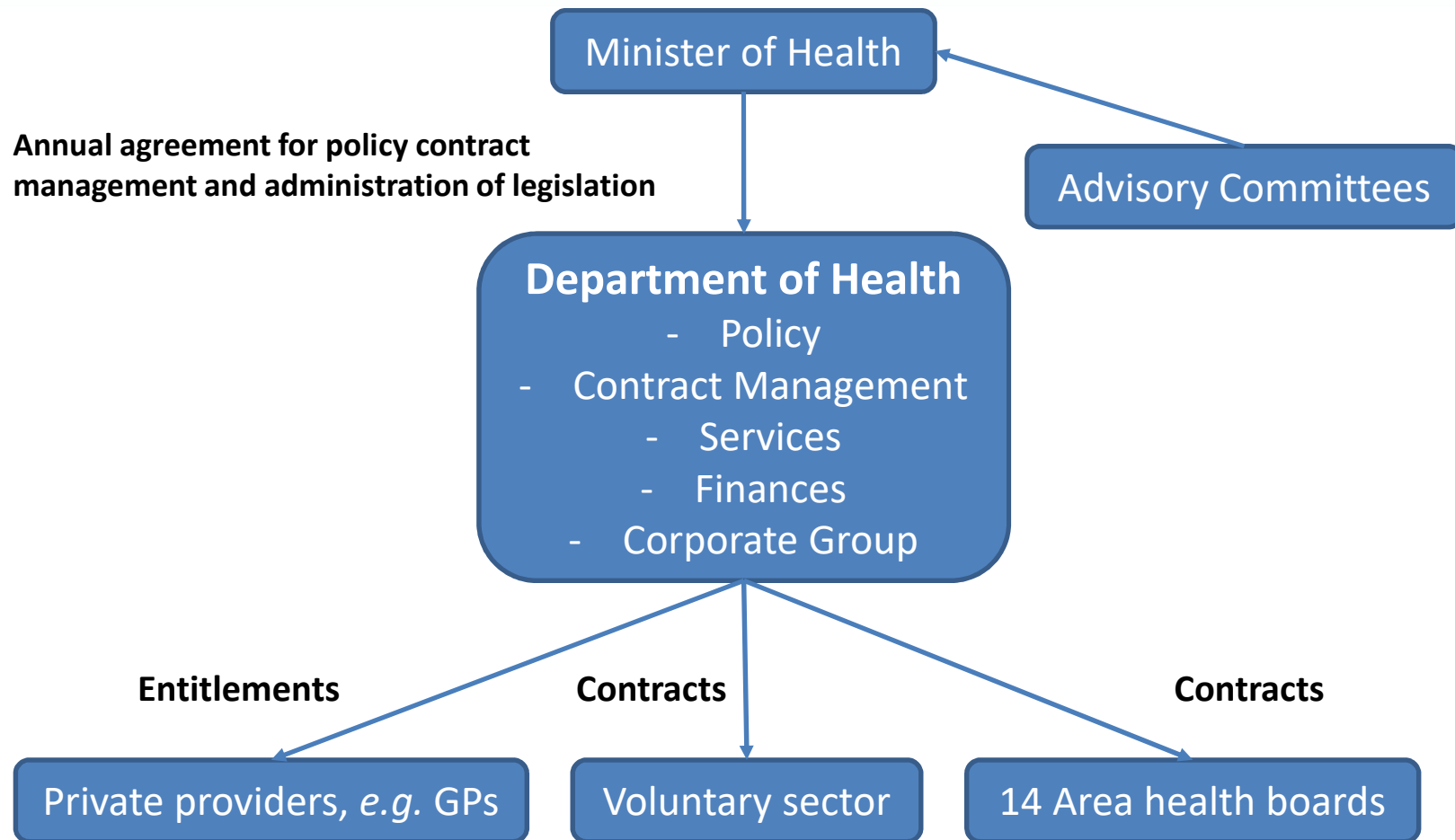
Period characterized by a preference for:

- Private provision
- Competition
- Labor flexibility
- Contractual arrangements

No attempt to make major labor or welfare reform but attempts were made to create a market for healthcare. This was resisted by labor supporters and health professionals.

1993 - 4 Regional Health Authorities (RHAs) were established. Purchasing and provision of health services were separated. The 14 **Area Health Boards** were reconfigured into 23 **Crown Health Enterprises (CHEs)** structured as **for-profit organisations** and subject to ordinary company law. Public health services were unbundled and a separate public health purchasing agency, the Public Health Commission, was established.

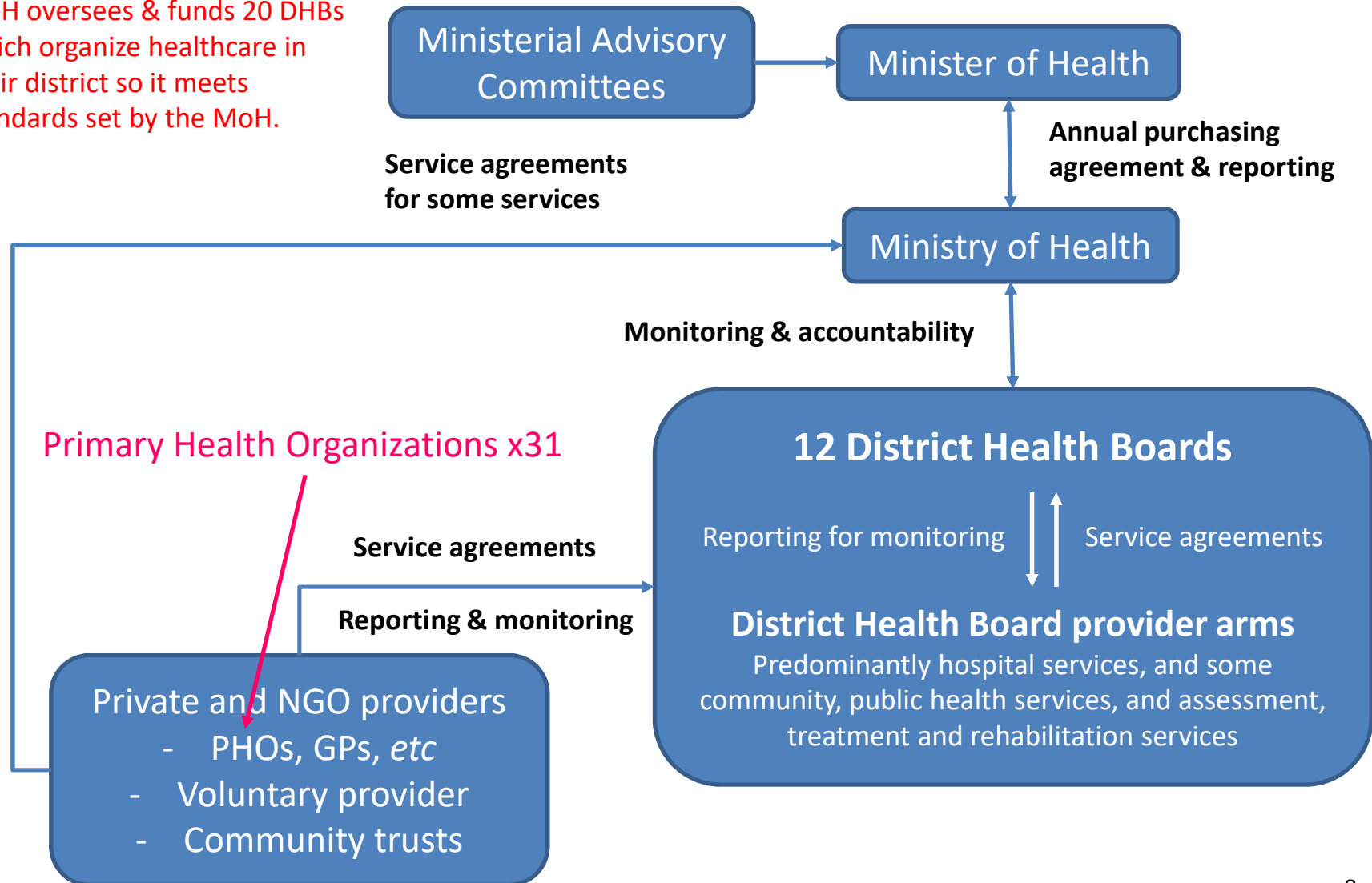
The structure of New Zealand's health system circa 1992

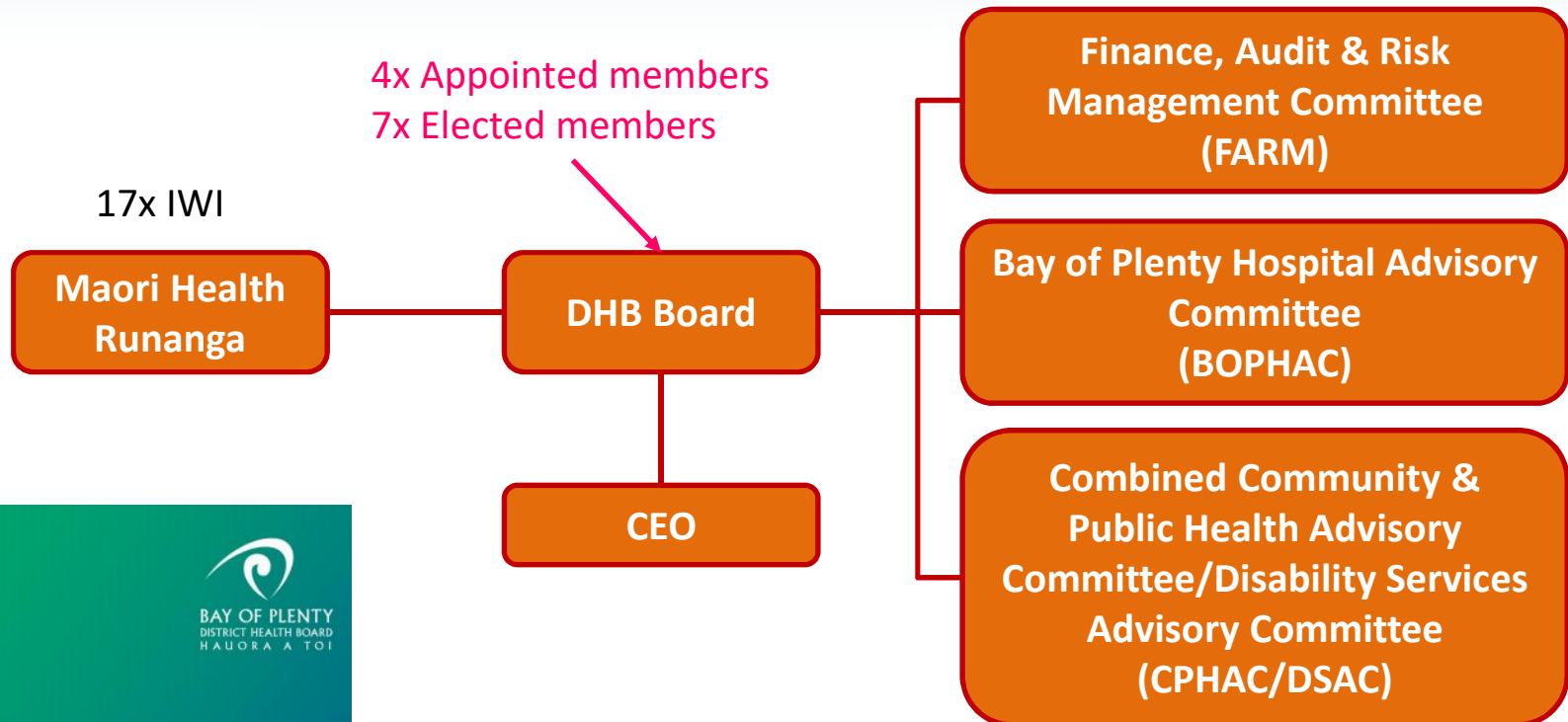


Our Health System – Who Does What?

The structure of New Zealand's health system circa 2008

MoH oversees & funds 20 DHBs which organize healthcare in their district so it meets standards set by the MoH.





Financials - year end position - deficit of **\$23.7M**.

Operating deficit \$15.9M (67%) with remainder of \$7.8M (33%) linked to the **unanticipated impact** of COVID and Whakaari.

The \$7.8M contribution to our overall deficit is **not part** of the **annual plan or budget**. It is also important to note that the forecast operational deficit was originally \$16.5m.

BOPDHB – 7 Democratically Elected Members

Responsible for planning and funding health services for their geographical areas



Bev Edlin (elected)
DBA, MBA, FICS, CMinisD



Hori Ahomiro (elected)
MIS (Hons) BSW, Reg SW,
Dip Ad. Ed. Clinical and
Mataora



Mark Arundel (elected)
Pharmacist



Geoff Esterman (elected)
General Practitioner



Marion Guy (elected)
BN, PG Dip. MN, QSO



Pete Chandler, CEO
Originally trained as an
operating theatre practitioner
in the United Kingdom's
National Health Service,
Chandler practised clinically for
12 years, specialising in major
trauma and cardiothoracic
surgery.



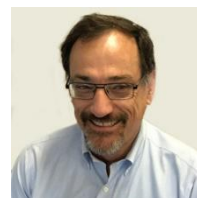
Sharon Shea - Interim Board Chair
MSc Comparative Social Policy,
Distinction (Oxon), BA/LLB
(Auckland)



Pouroto Ngaropo



Ian Finch (elected)
Optometrist



Ron Scott (elected)
JP CMinistD MNZATD

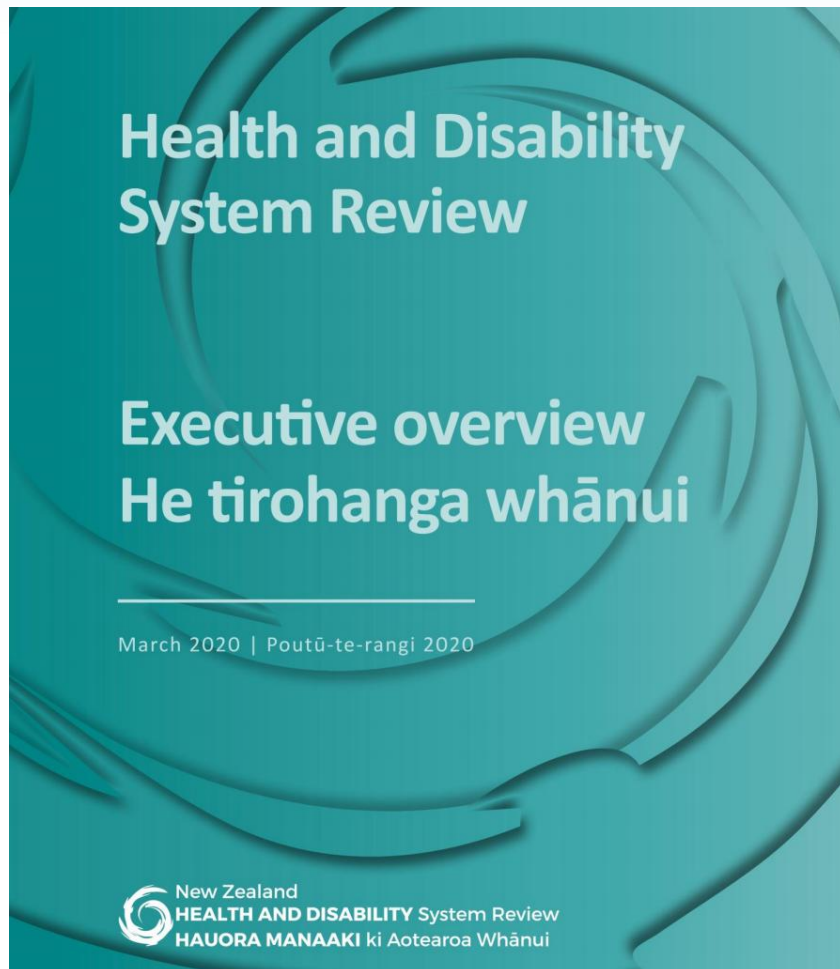


Leonie Simpson
LLB/BA



Arihia Tuoro
Master of Business in
International Business
Management
Diploma in Corporate
Management

Another Reform on its Way



<https://systemreview.health.govt.nz/>

Why we should be skeptical about big health reform

Ben Heather, Jun 17 2020

Outside the scope of the Review
are private health insurance (although its interaction with demographic drivers of health care need is in scope)



Heather Simpson
Chief of Staff to Prime Minister Helen Clark

Dr Winfield Bennett
Shelley Campbell (CEO, Cancer Society)
Prof. Peter Crampton (Dean, Otago Medical School)
Dr Lloyd Mcann (CEO, Mercy Radiology, Chairman NZTA)
Sir Brian Roche (CEO, NZ Post Group)
Dr Margaret Southwick

<https://systemreview.health.govt.nz/about/expert-review-panel/>

How Good is Our Present Health System?

Typical Metrics

No. doctors & nurses per capita

No. of hospital beds

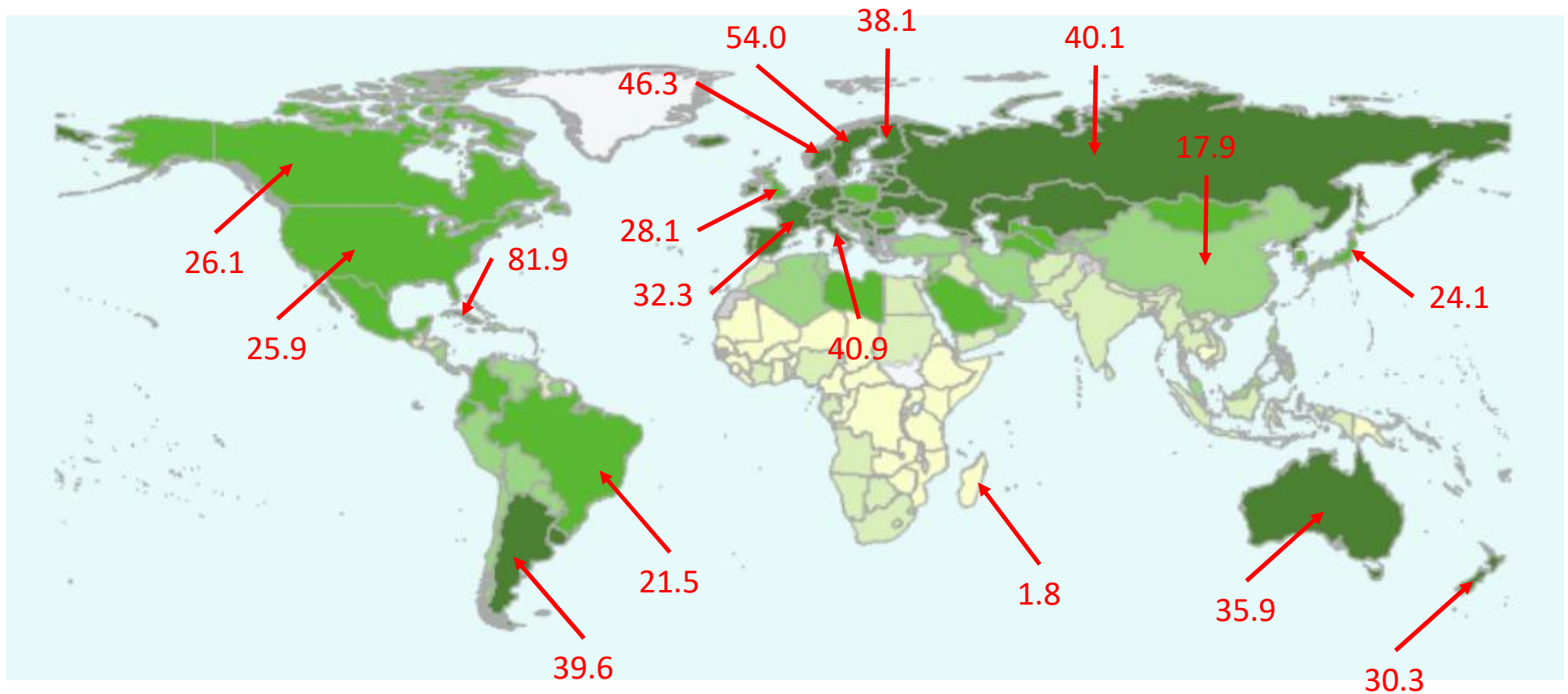
Ave. life expectancy

Availability of equipment and instruments

Waiting lists

Healthcare spending as a % of GDP

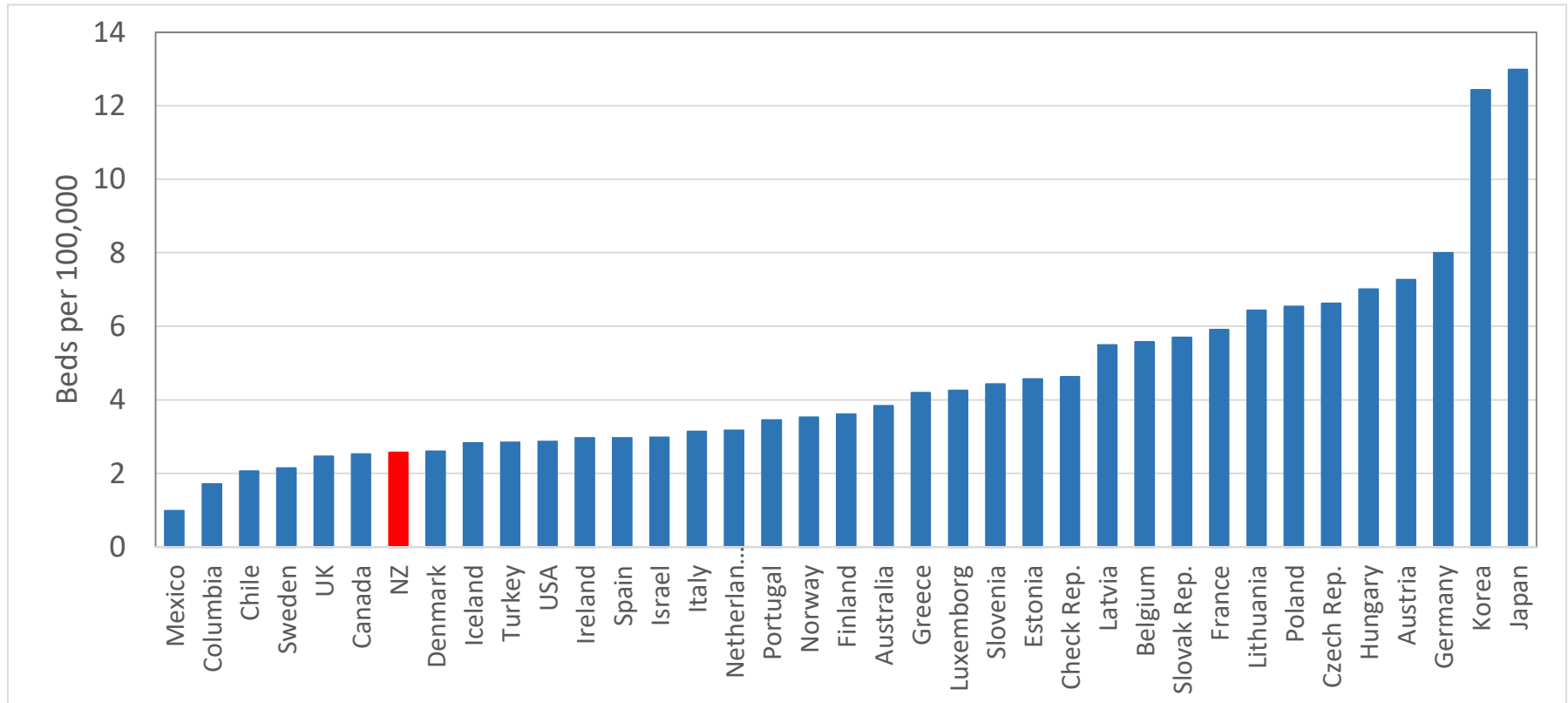
Medical Doctors per 10,000 of Population



We are in the middle of the pack

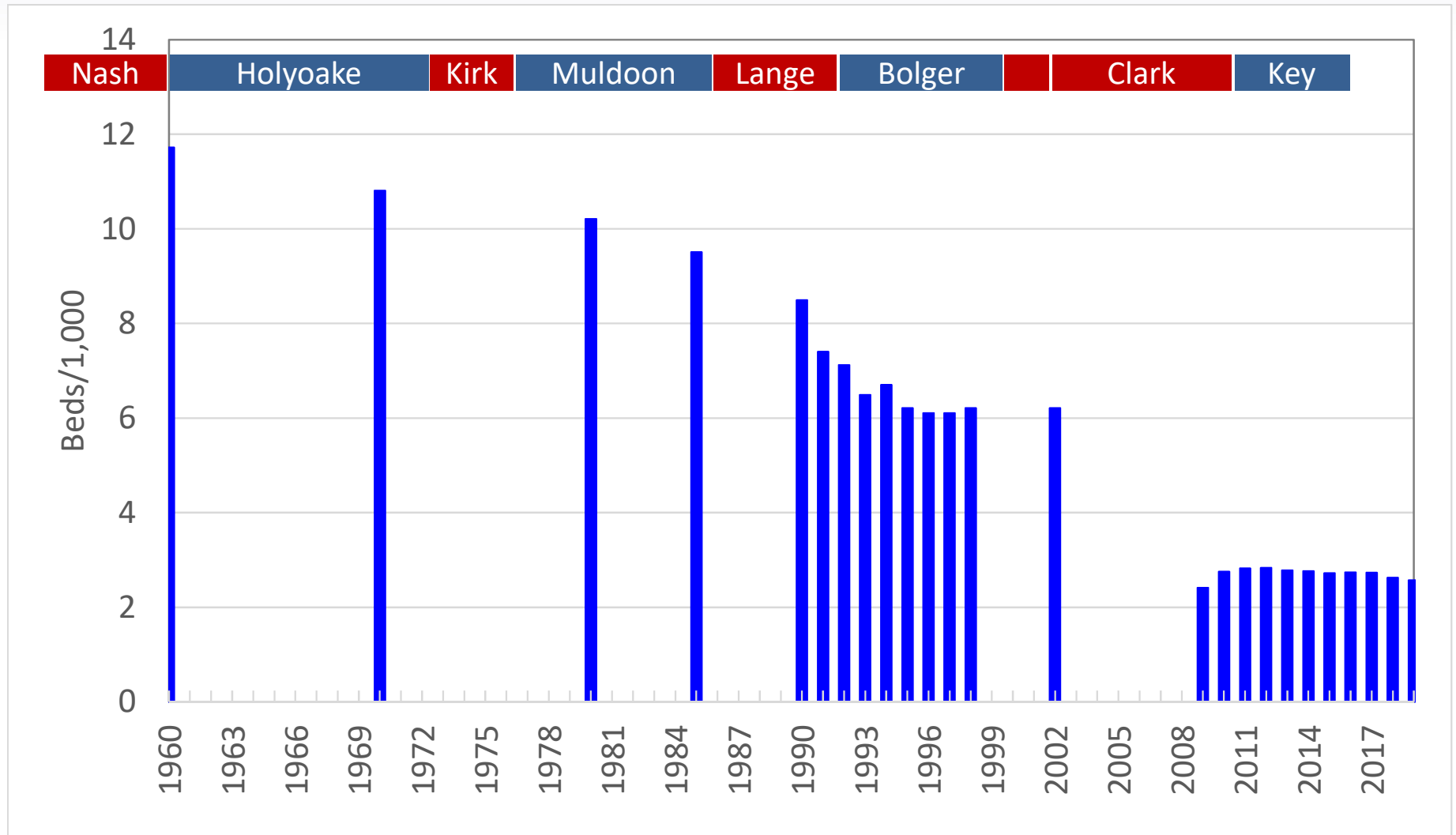
Hospital Beds-per-100,000 Population

How we Compare with OECD Countries?

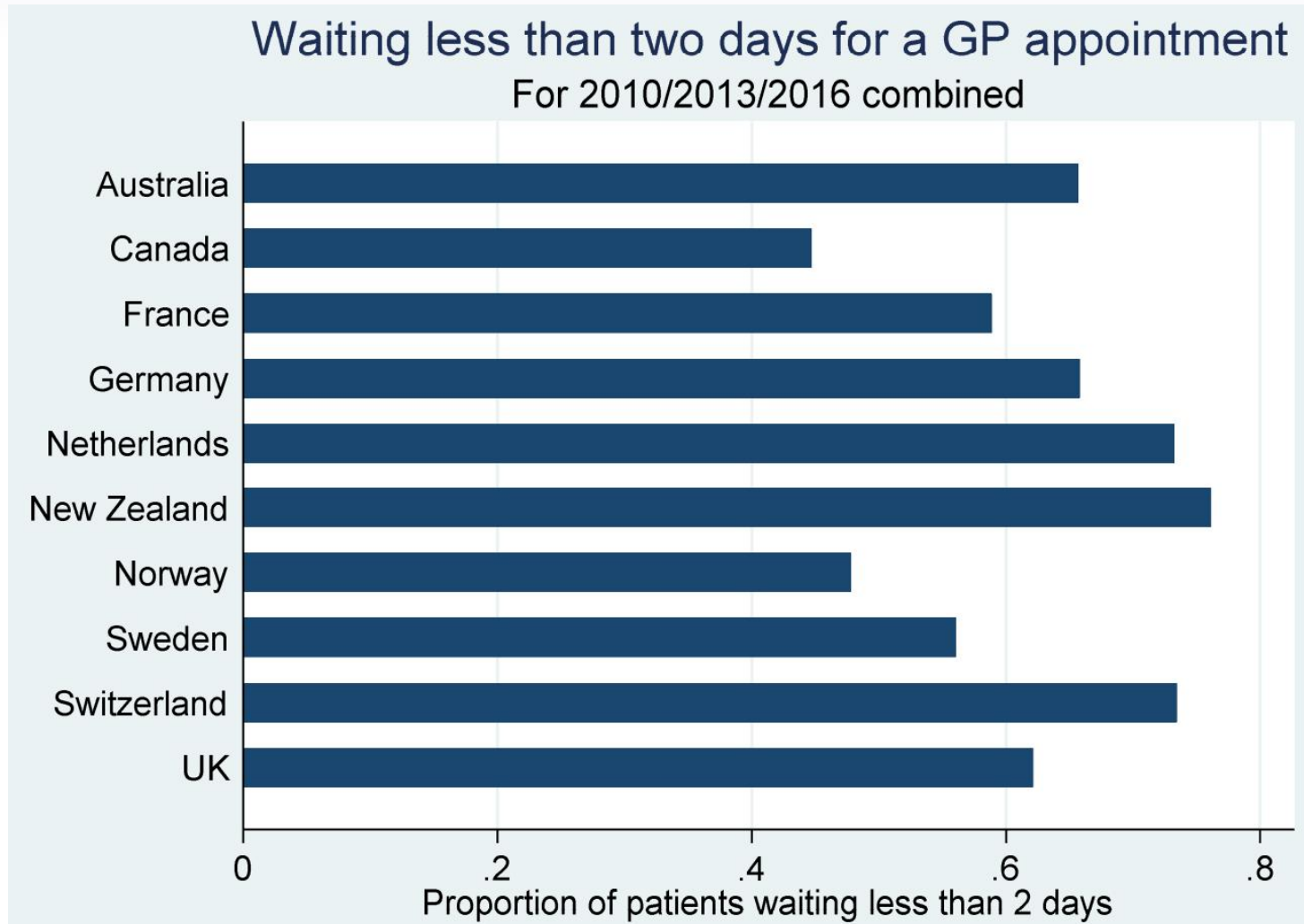


<https://data.oecd.org/healthqt/hospital-beds.htm#indicator-chart>

Beds per 1,000 of Population

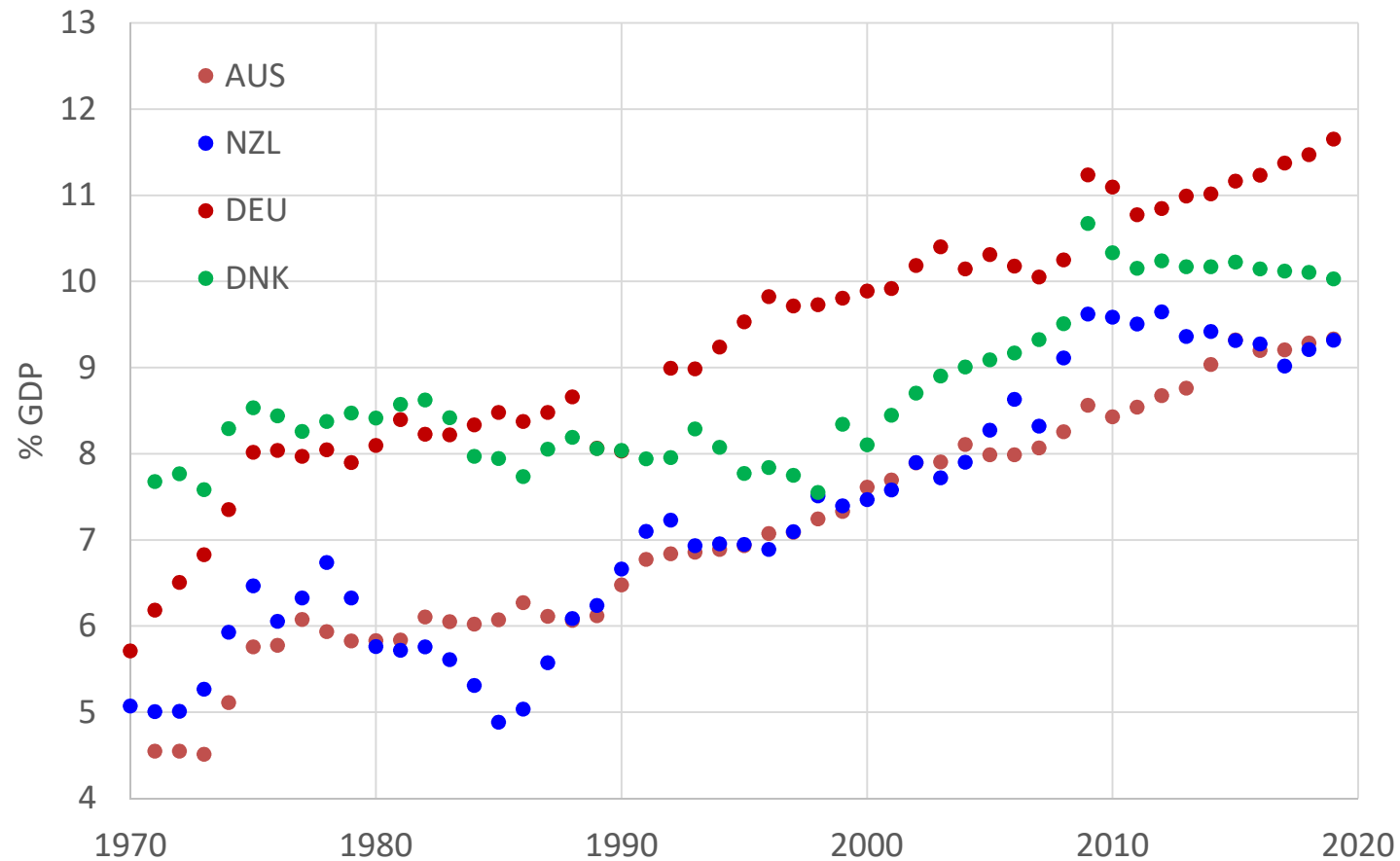


Doing OK in time to see GP



But for found data for a limited number of countries

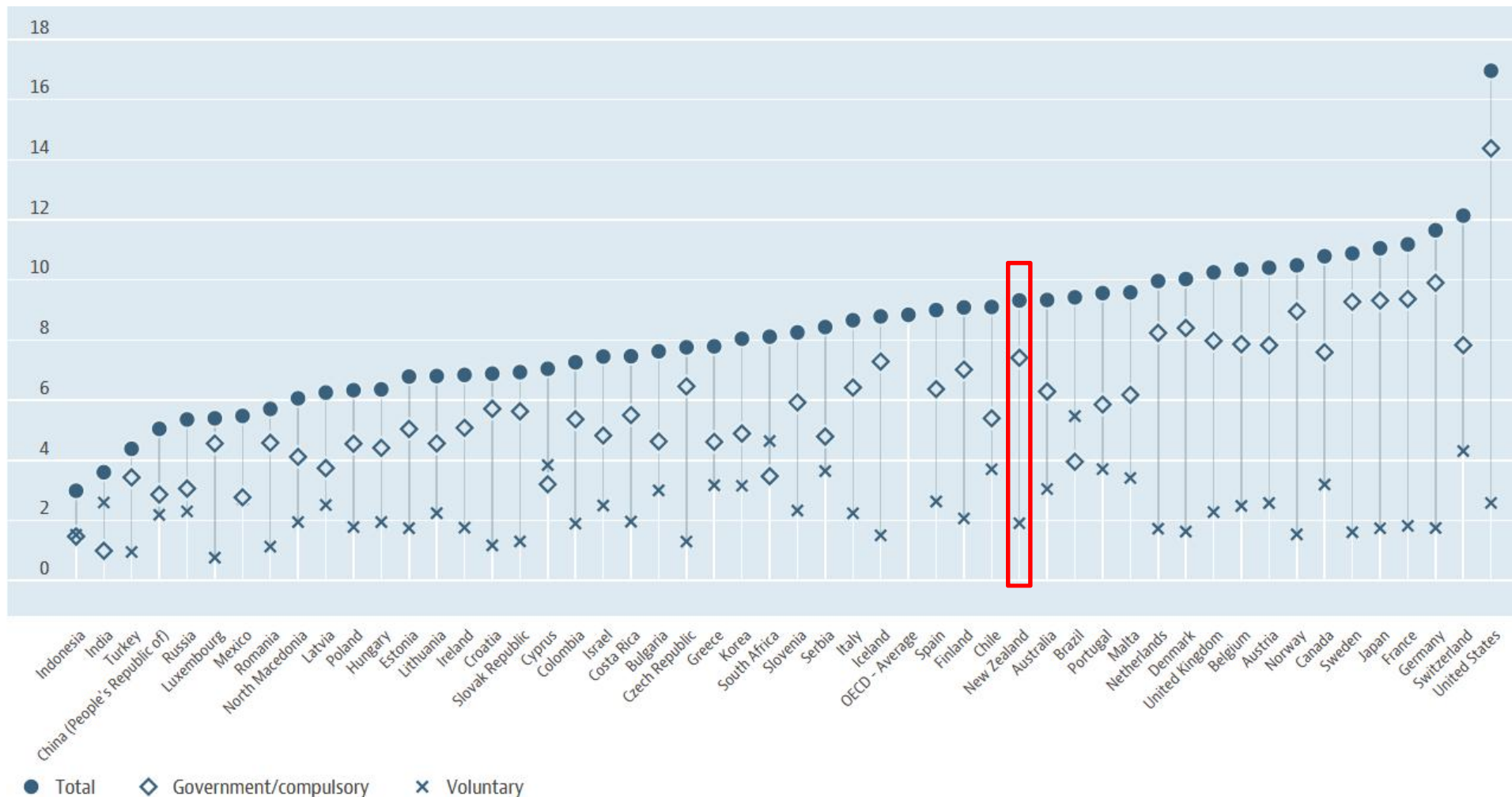
Costs – Do We Get What We Pay For?



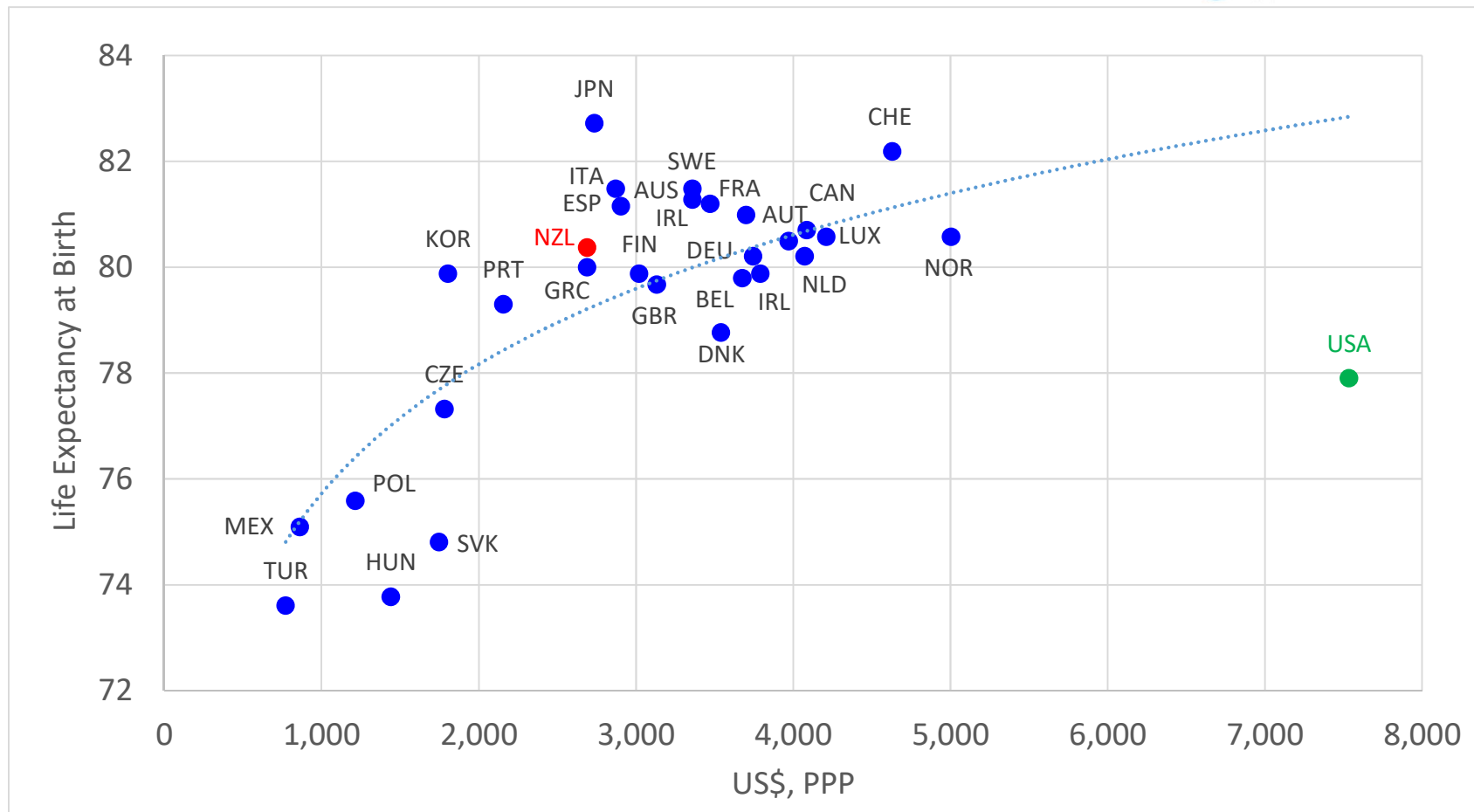
Total health spending was 9 percent of GDP in 2017.² Public spending accounted for 78.68 percent of total spending.

Health spending - Total / Government/compulsory / Voluntary, US dollars/capita, 2019 or latest available

Source: Health expenditure and financing: Health expenditure indicators



OECD - Health care systems - getting more value for money 2010



OECD 2010, "Health care systems: Getting more value for money", *OECD Economics Department Policy Notes*, No. 2. <https://www.oecd.org/eco/growth/46508904.pdf>

The Medical Workforce – Doctors by Ethnic Group

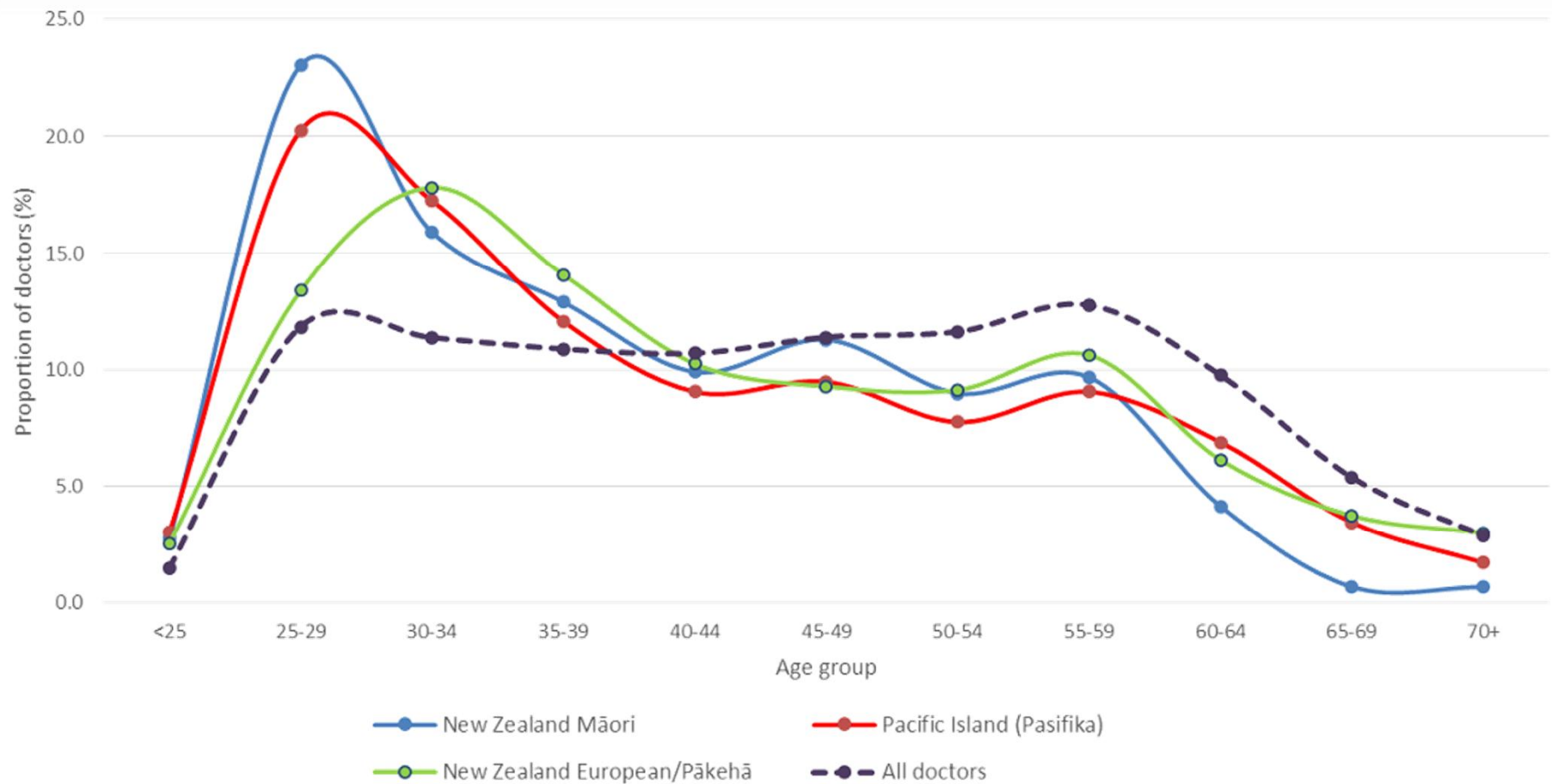
Table 1: Proportion of doctors by ethnic group (%)

Ethnicity	2000	2005	2010	2015	2018
Māori	2.3	2.6	3.0	3.4	3.5
Pacific Island (Pasifika)	1.1	1.5	1.3	2.0	1.8
Chinese	4.5	5.4	5.3	5.9	5.8
Indian	4.5	5.1	5.9	6.0	5.5
Other non-European	7.6	10.8	9.9	11.9	10.6
Other European ¹	-	15.4	19.7	20.5	19.5
NZ European/Pākehā	76.5	57.5	53.3	51.4	51.0
Not answered	3.2	1.5	1.5	2.4	2.3
Refused ²	0.2	0.2	0.2	-	-
Total³	100.0	100.0	100.0	100.0	100.0

Source: Medical Council of New Zealand - The New Zealand Medical Workforce in 2018

More Needed!

The Medical Workforce – Doctors by Age Group



Source: Medical Council of New Zealand - The New Zealand Medical Workforce in 2018

The Best Healthcare Systems Around the World

The NHS has vowed to save 500,000 more lives in the next ten years, with over half of NHS staff working unpaid overtime every single week, working around the clock to treat patients of the UK.

But what are the healthcare systems like in other countries around the world?

Which country has the most doctors per capita? Which country spends the highest % of their GDP on healthcare?

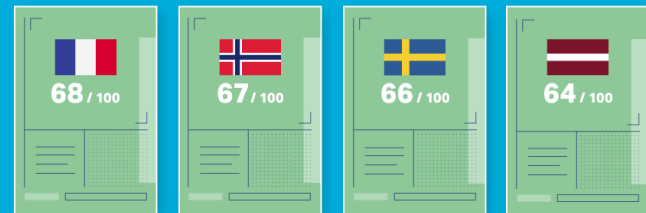
We've scored OECD* countries on metrics such as healthcare spending as a % of GDP, number of hospital beds, doctors & nurses per capita, and average life expectancy. Take a look at our findings below to see which countries have the best healthcare systems.

*OECD is the Office of Economic Cooperation and Development

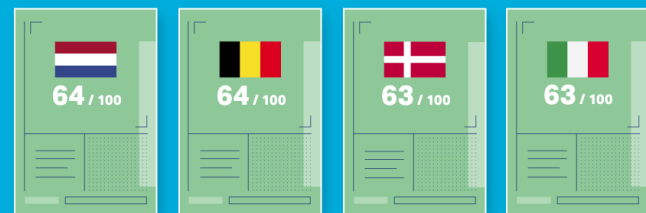
Score / 100 = Overall Healthcare Score



Japan	Germany	Switzerland	Austria
Healthcare spend 10.7%	Healthcare spend 11.3%	Healthcare spend 12.3%	Healthcare spend 10.3%
# Hospital beds 1,664,456	# Hospital beds 863,941	# Hospital beds 38,058	# Hospital beds 64,838
# Doctors & Nurses 1,747,826	# Doctors & Nurses 1,402,755	# Doctors & Nurses 178,114	# Doctors & Nurses 114,584
Life expectancy 85.77	Life expectancy 81.01	Life expectancy 81.84	Life expectancy 80.77



France	Norway	Sweden	Latvia
Healthcare spend 11.5%	Healthcare spend 10.4%	Healthcare spend 10.9%	Healthcare spend 6.3%
# Hospital beds 404,248	# Hospital beds 19,303	# Hospital beds 23,207	# Hospital beds 11,208
# Doctors & Nurses 211,162	# Doctors & Nurses 117,805	# Doctors & Nurses 150,247	# Doctors & Nurses 361,819
Life expectancy 81.95	Life expectancy 81.12	Life expectancy 81.85	Life expectancy 74.64



Netherlands	Belgium	Denmark	Italy
Healthcare spend 10.1%	Healthcare spend 10%	Healthcare spend 10.2%	Healthcare spend 18.9%
# Hospital beds 61,767	# Hospital beds 64,498	# Hospital beds 14,871	# Hospital beds 192,327
# Doctors & Nurses 239,831	# Doctors & Nurses 160,925	# Doctors & Nurses 116,953	# Doctors & Nurses 574,949
Life expectancy 81.62	Life expectancy 80.54	Life expectancy 79.8	Life expectancy 82.43

id MEDICAL



id MEDICAL

To establish an overall 'healthcare' score for each country data from five metrics (% of GDP spent on healthcare, # of hospital beds, # of doctors, # of nurses and average life expectancy) was divided by its country's population to generate a per capita figure. These figures were then used to score each country out of 100, with each metric assigned a value based on how important it was considered to be. 32 OECD countries were analysed with the top scoring 24 featured in this campaign. Countries that do not have a public or universal healthcare system (eg. USA) were not included in the final analysis. All data was pulled between the 26/03/2019 and 28/03/2019, with the most recent available data used for each metric (ranging from 2013 - 2018).

All data and sources can be viewed here: <http://bit.ly/2FD05iv>

Metrics

Healthcare spending as a % of GDP

No. of hospital beds

Doctors & nurses per capita

Ave. life expectancy

19/24 position

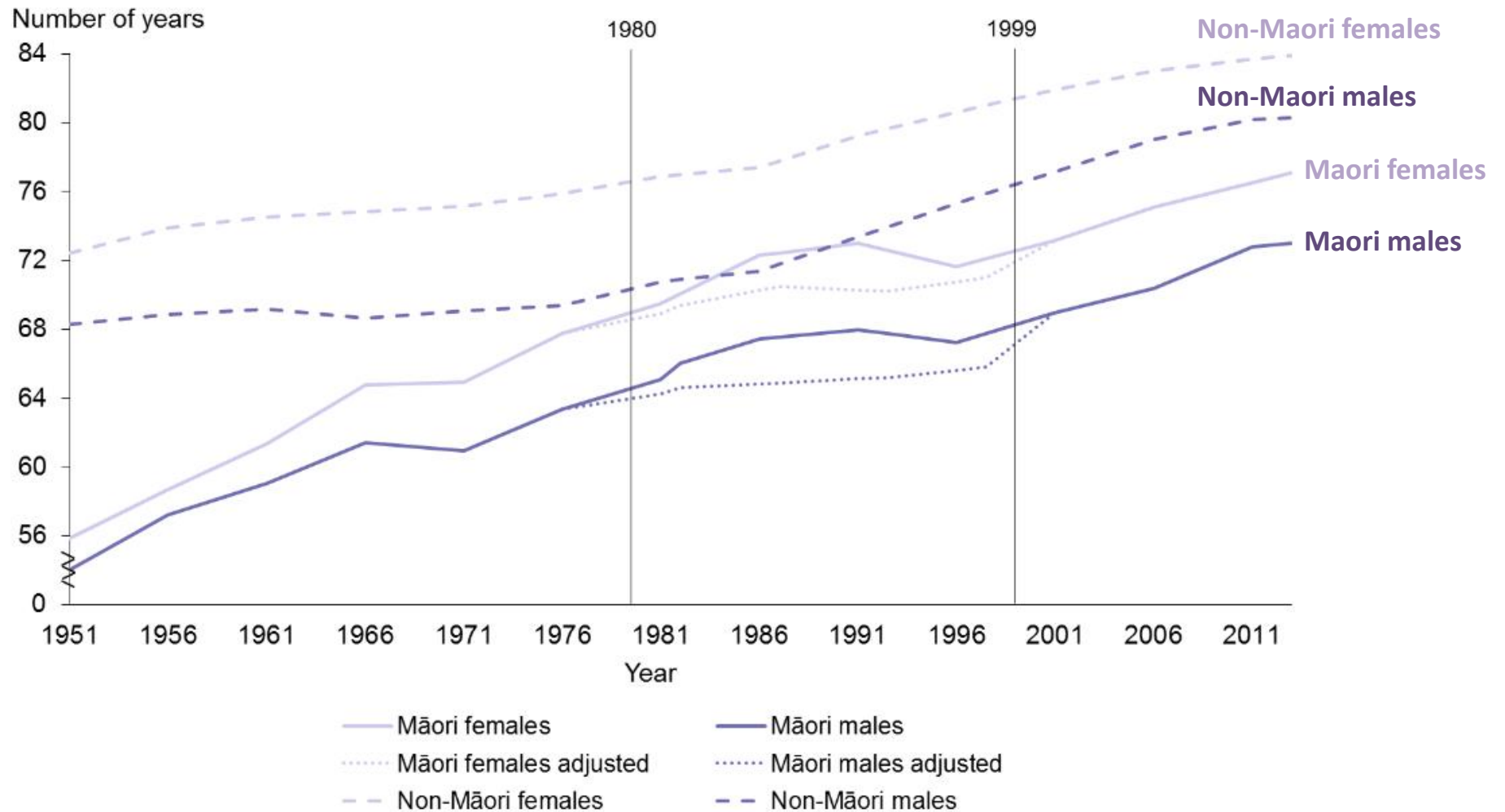
How we compare with peers - Indices

No Health Care System is Perfect!

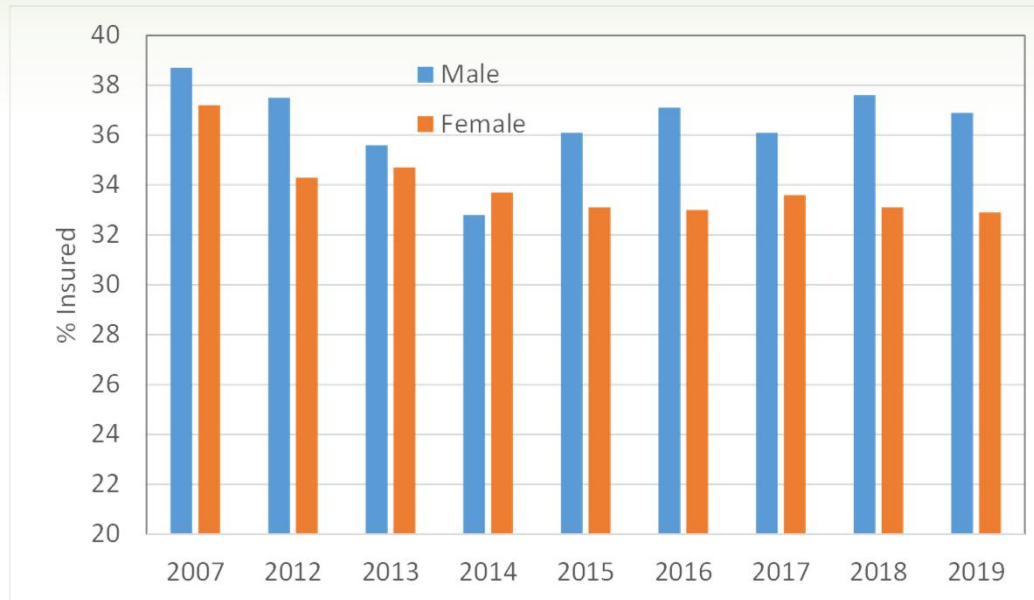
Source: [The Economist - Intelligence Unit](#)

	Health spend per head	Spend rank	Outcomes index	Outcomes rank	Cost per outcome point
	US\$	166=high	100=high	166=high	US\$
Japan	4,714	153	98.4	166	47.9
Singapore	2,538	145	95.5	165	26.6
Switzerland	8,928	164	95.1	164	93.9
Iceland	3,869	149	94.1	163	41.1
Australia	6,173	161	94.1	162	65.6
Italy	3,044	147	94.1	161	32.4
Spain	2,717	146	93.8	160	29.0
Cyprus	1,929	140	92.8	159	20.8
Israel	2,440	144	92.5	158	26.4
Sweden	5,258	157	92.5	157	56.8
France	4,959	155	92.2	156	53.8
New Zealand	4,061	151	91.9	155	44.2
Canada	5,692	159	91.6	154	62.1
Norway	8,985	165	90.8	153	98.9
South Korea	1,834	137	90.8	152	20.2
Austria	5,355	158	90.6	151	59.1
Luxembourg	7,282	163	90.5	150	80.5
Netherlands	6,103	160	90.3	149	67.6
Germany	4,964	156	89.8	148	55.3
Finland	4,354	152	89.7	147	48.5
Ireland	3,928	150	89.4	146	44.0
Malta	1,902	138	89.2	145	21.3
United Kingdom	3,679	148	89.0	144	41.3
Belgium	4,901	154	88.7	143	55.2
Portugal	1,913	139	88.3	142	21.7
Greece	2,077	142	88.3	141	23.5
Costa Rica	952	122	87.1	140	10.9
Chile	1102	129	87.0	139	12.7

Health Disparities – Māori versus Non-Māori



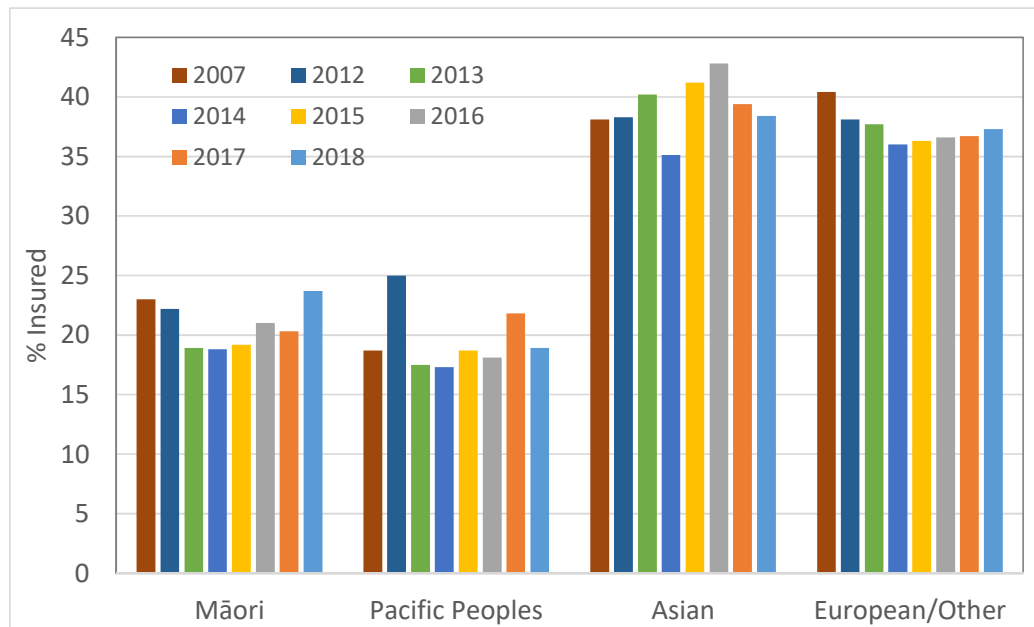
Private Health Insurance in NZ



50% of New Zealanders held private insurance in 1992.

But private insurance only funded 4.8% of total health expenditure.

Scott, Reform of the New Zealand health care system. *Health Policy* **1994**, 29, 25-40.



Almost half of the population have some private health insurance but this accounts for only 6% of total health expenditure.

Ashton. Health care systems in transition - New Zealand_Part 1: An overview of New Zealand's health care system. *J. Pub. Health Med.* **1996**, 18(3), 269.

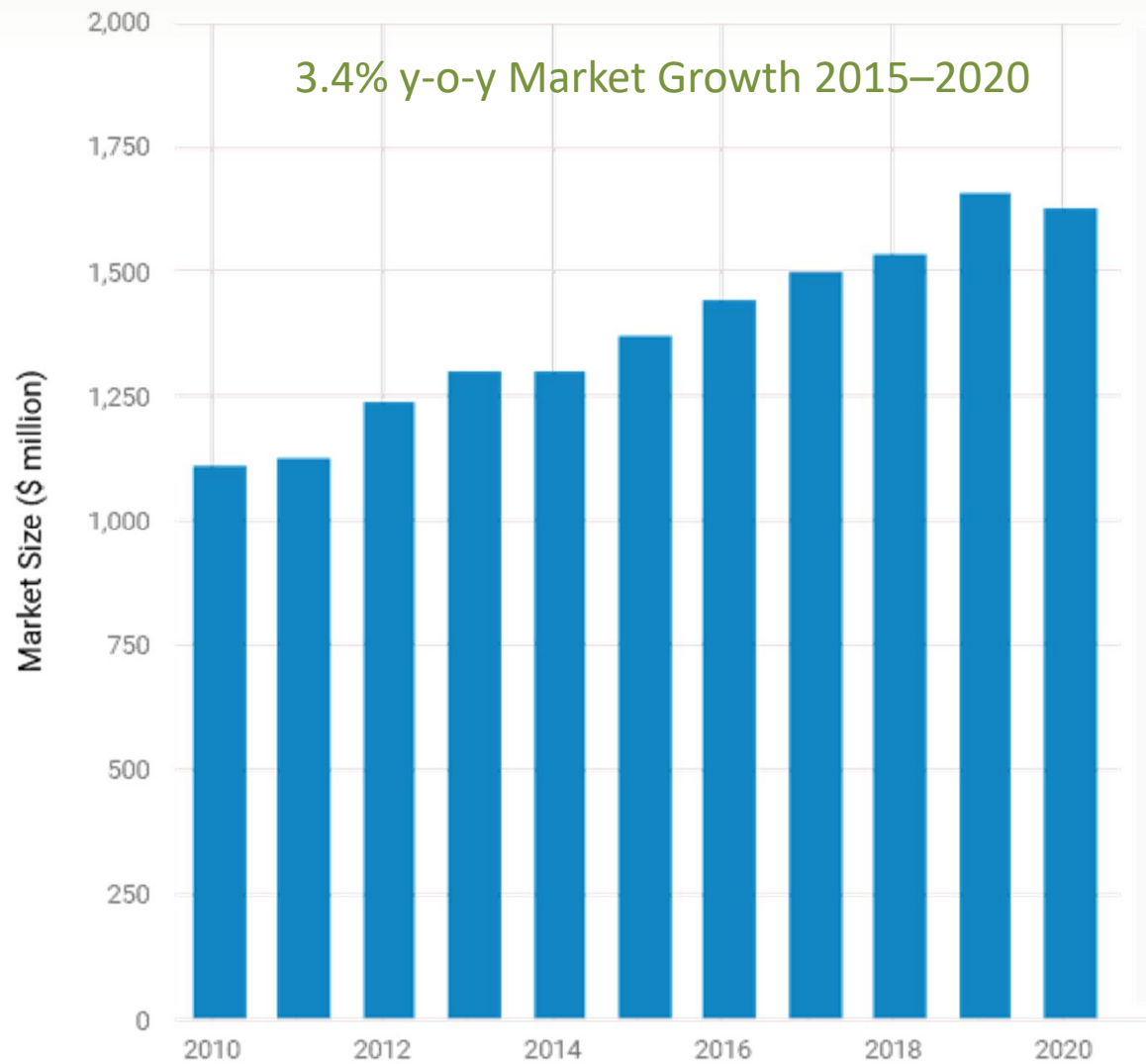
Adults with private health insurance cover in New Zealand by District Health Board of residence

2011–2015 average, % of adults in DHB (unadjusted)

Provider: Ministry of Health



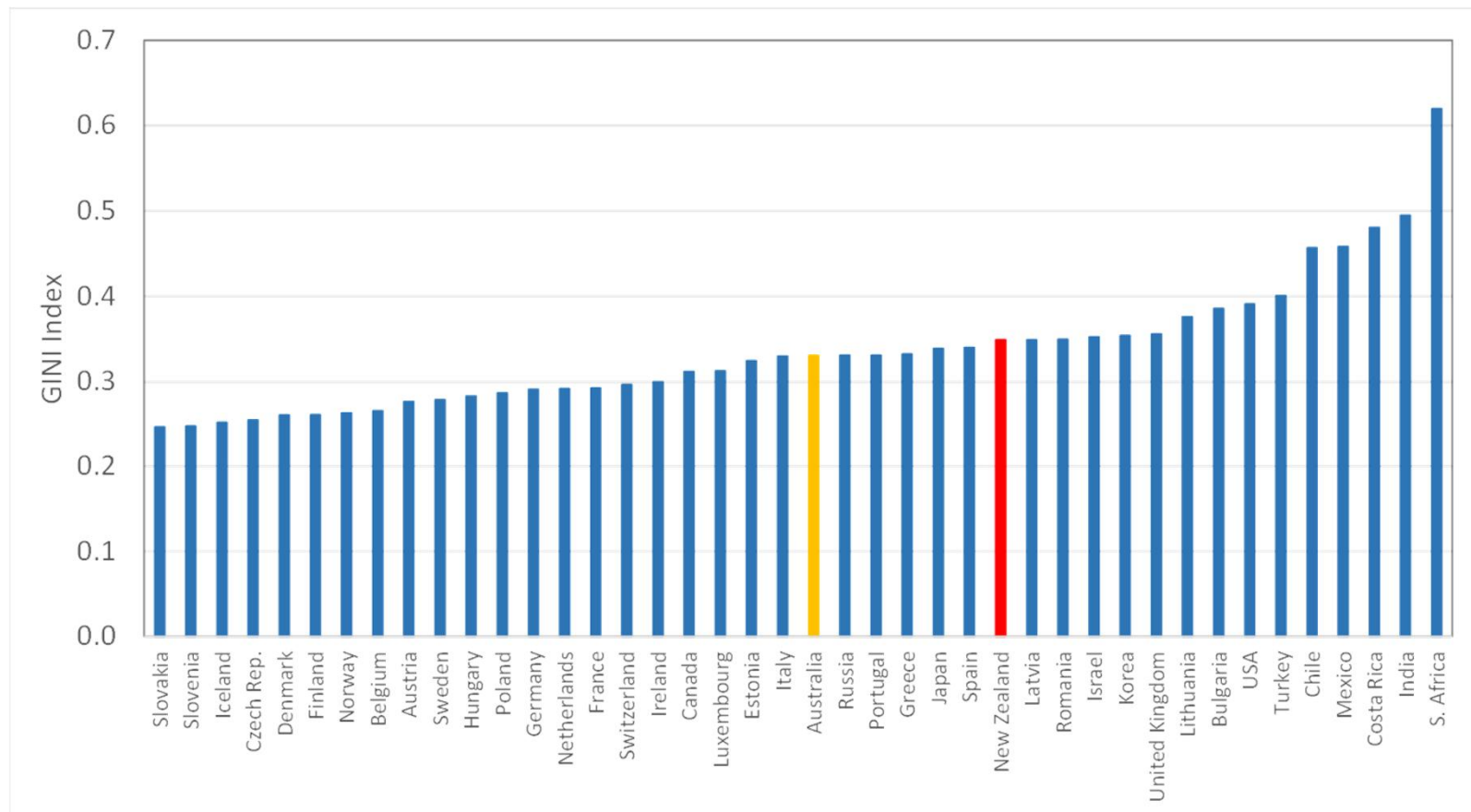
New Zealand Health Insurance Market Size 2007–2027



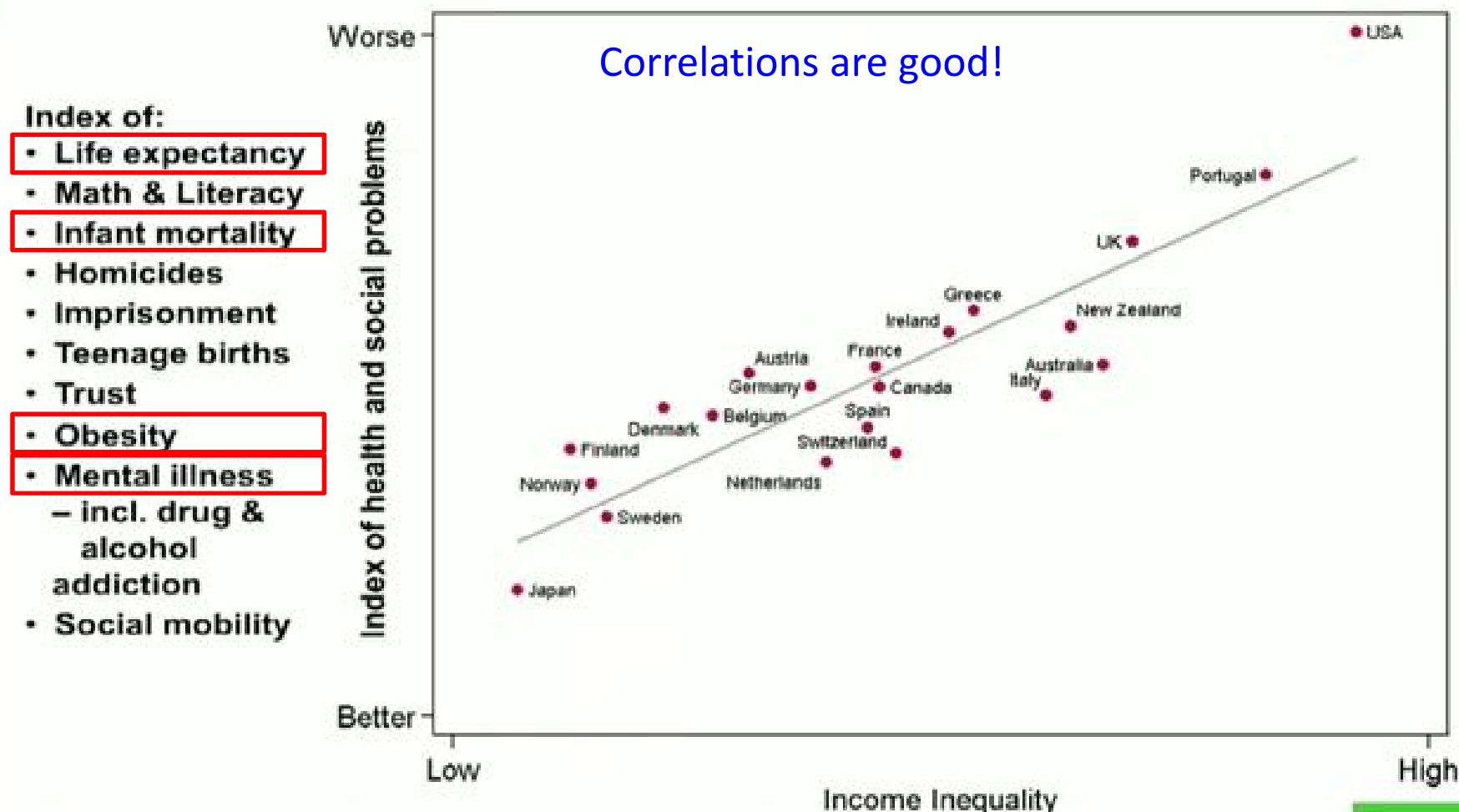
The Medical System and Wealth Gap

GINI = 0 (everyone equal)

GINI = 1 (Everyone unequal, one resident earned all income)



Health & Social Indicators vs Income Inequality



Source: Wilkinson & Pickett, The spirit level: Why greater equality makes societies stronger. Bloomsbury Press 2010

Slowly Increase the Temperature and the Frog Doesn't Notice being Boiled to Death



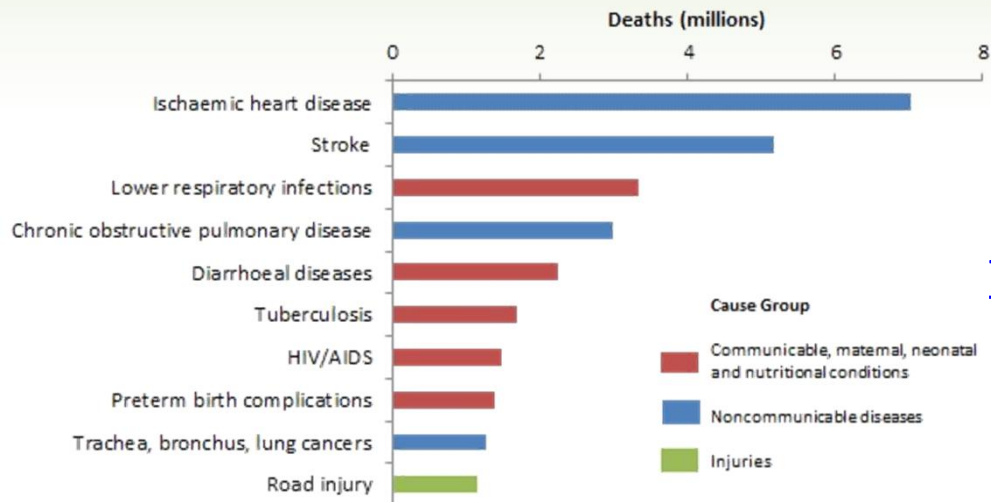
The more wealthy (insured) get the prompt and premium service while the rest get the waiting list!

Maori are more concentrated here.
But not exclusively a Maori problem!

The Socio-Economic Ladder



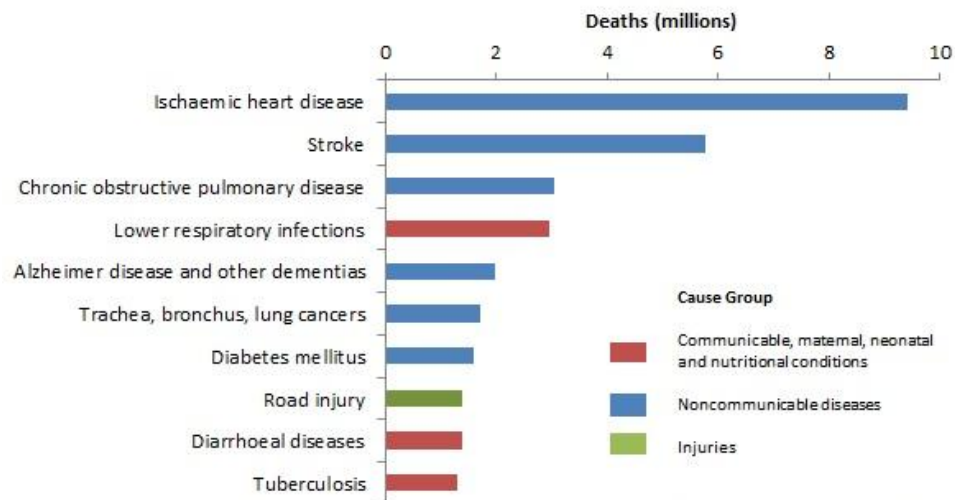
Top 10 global causes of deaths, 2000



Source: Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization; 2018.

The top 10 causes of death, 24-May-18

Top 10 global causes of deaths, 2016



Source: Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2016. Geneva, World Health Organization; 2018.

Diagnostics - Dr Leonard H. (Bones) McCoy's Tricorder



Wave the instrument over the body and you get an instant readout of health status and a diagnosis.

If only we had it!

Diagnosis

Hematology & Microbiology

Microscope & gram-stains

MALDI-TOF MS

RT-PCR

Imaging

Conventional 1D X-ray

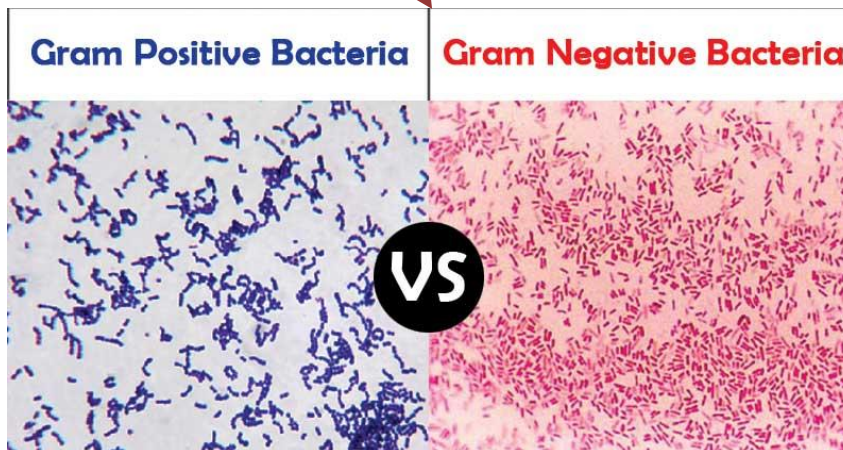
X-ray CT

SPECT

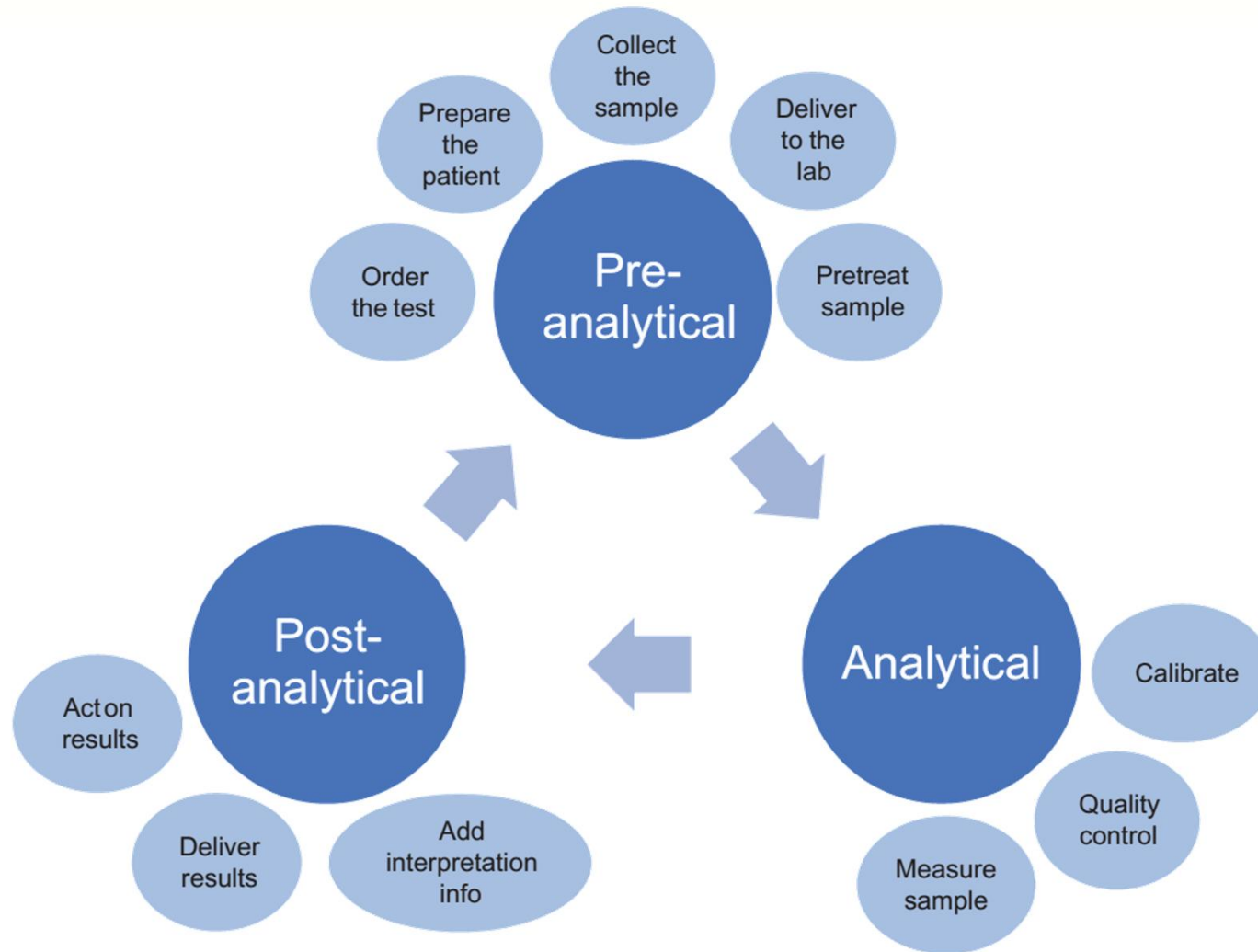
PET-CT

Ultrasound

MRI



Hematology & Microbiology



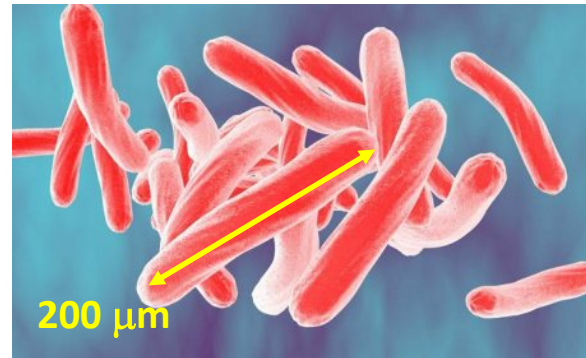
The first 'compound microscope', circa 1595

Hans and Zacharias Janssen (c. 1580 - c. 1638)

First Compound Microscope (circa 1595)



Mycobacterium Tuberculosis (Mtb)



Rudolf Virchow – 13-Oct-1821 – 5-Sep-1902

A German considered the father of microscopic pathology.

One of the first physicians to study manifestation of disease visible only at the cellular level.



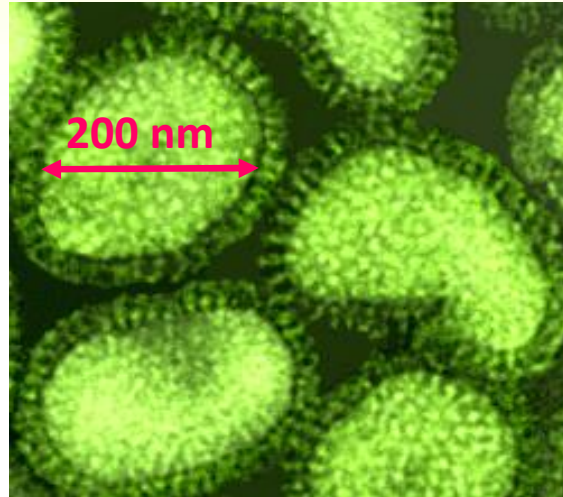
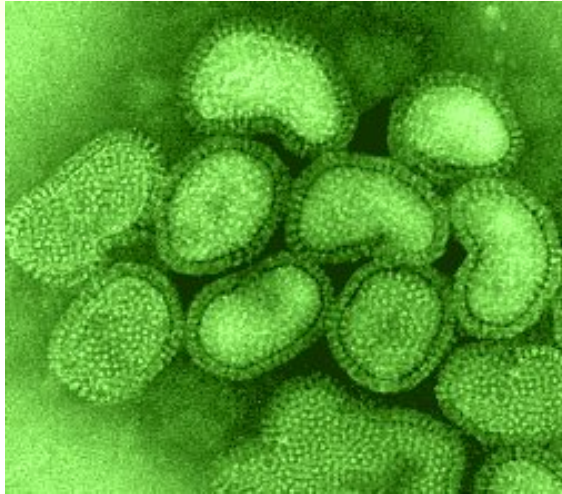
V8

<http://www.history-of-the-microscope.org/hans-and-zacharias-jansen-microscope-history.php>

Zacharias Jansen (c. 1580 - c. 1638) was a Dutch spectacle-maker from Middelburg credited with inventing the first microscope. Although Zacharias Jansen's life was previously documented, many of the archives were lost in the fires following the German bombardment of Middelburg during the Second World War on May 17th 1940.

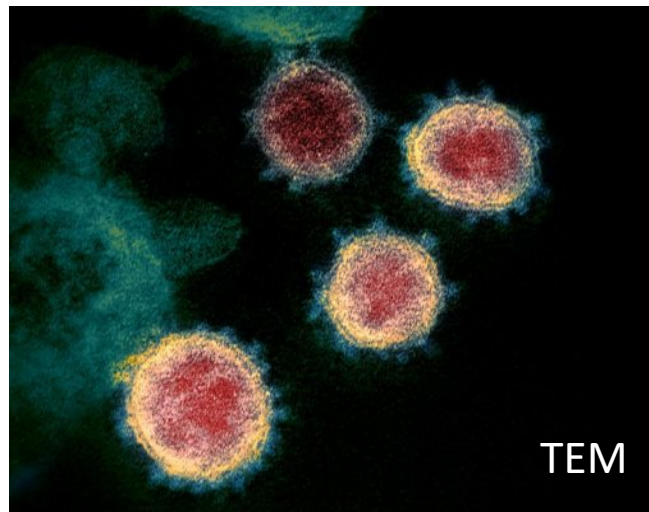
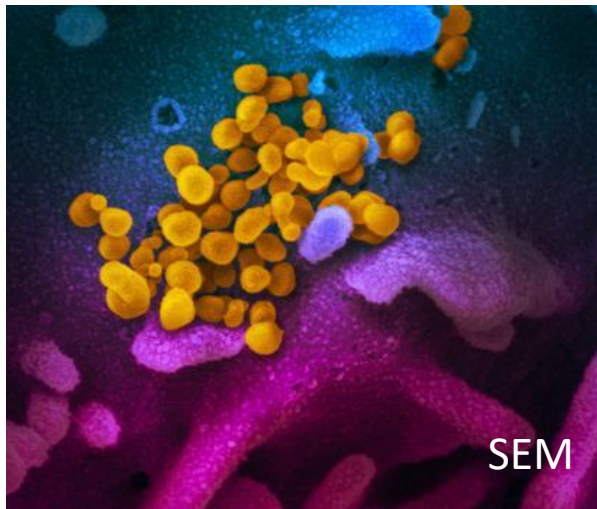
Vittorio, 3/4/2018

Influenza



Human hair 20-200 μm

SARS-CoV-2



<https://www.nature.com/articles/d41586-020-00262-7>

Culturing Bacteria

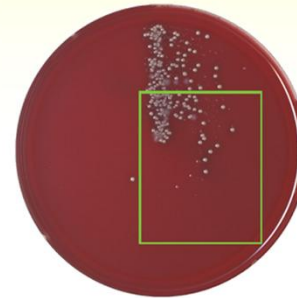
Manual processing with swab applicator



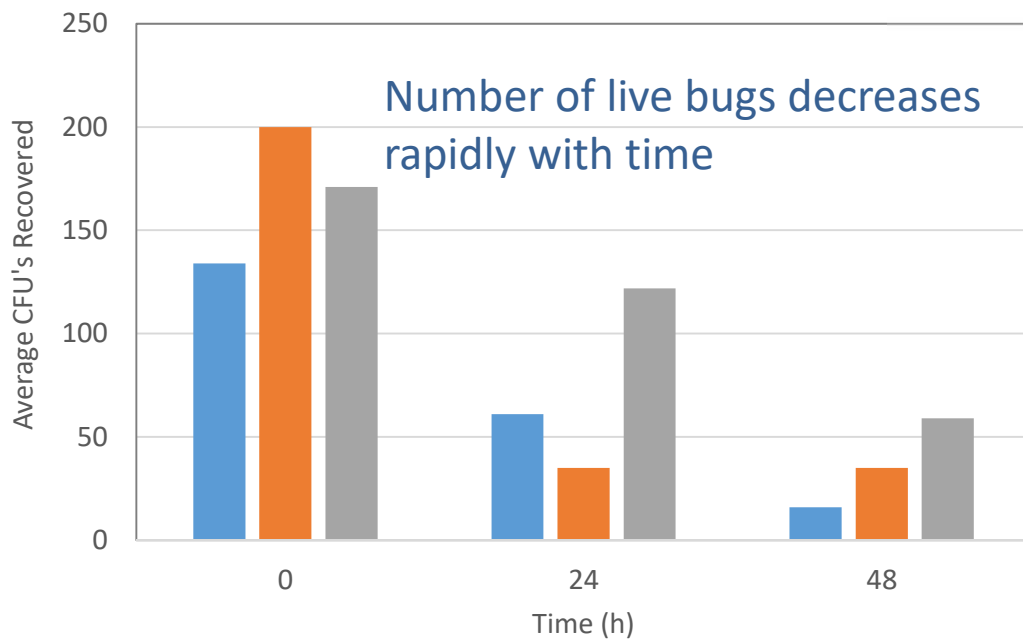
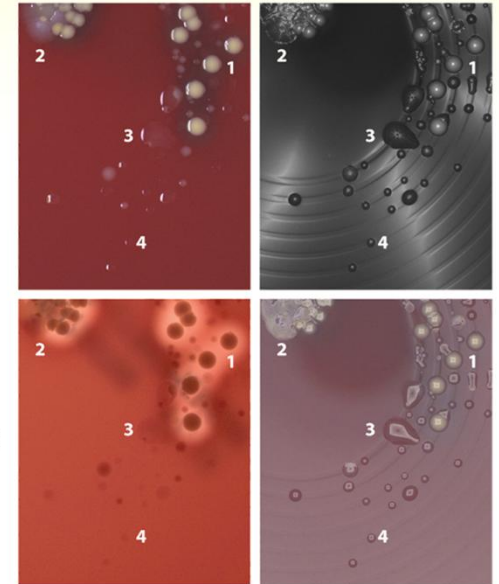
Manual processing without swab applicator



Streak plating example



1. *S. aureus*
2. *P. aeruginosa* (wild type)
3. *P. aeruginosa* (mucoid)
4. *P. aeruginosa* (Small Colony Variants)



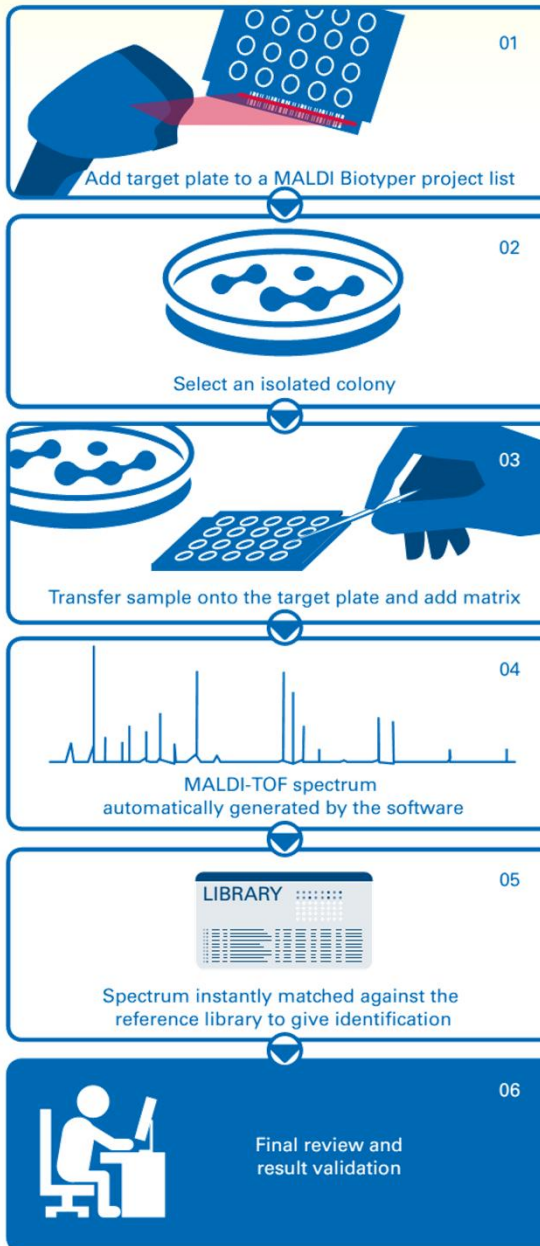
Modern Microbiology Laboratory Equipment



MALDI-TOF MS



Metrics: Turn-Around-Times (TAT)
Accuracy



RT-PCR



Doesn't require live organisms
since only detects RNA or DNA

Modes of Service Delivery

Centralized

Claimed Benefits

- Standardize pre-analytic, analytic, and post-analytic practices.
- Cost savings on instruments, reagents & personnel?
- Single set of financial resources allocated for service.
- Improved test accuracy (potentially).
- Centralized expertise.
- Increases in funding for education.
- ...

Decentralized

Claimed Benefits

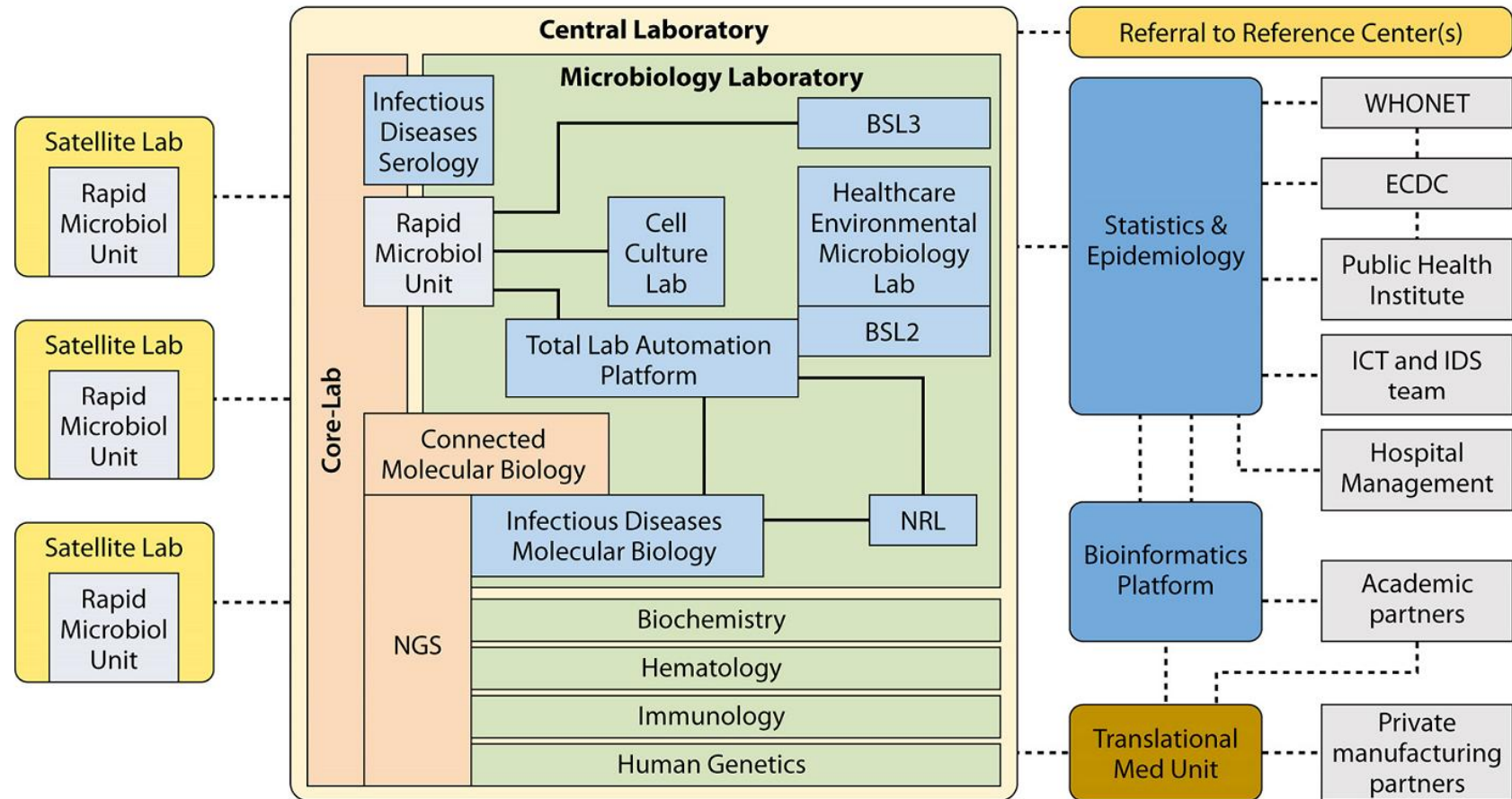
- Testing is physically located closer to the patient.
- Clinical care teams have direct contact with laboratory.
- No need for sample transport.
- Some testing still required off-site.
- Immediate answers can improve treatment & shorten hospital stay.
- Urgent tests must be done locally.
- ...

Considerations: Molecular platforms, antimicrobial susceptibility testing (AST) instrumentation, and pathogen identification systems.

Total laboratory automation (TLA) in microbiology is becoming commonplace for high-volume and lower-volume laboratories alike.

One rule of thumb is to perform locally any testing that requires a result in less than 3 hours.

Layout of a consolidated clinical microbiology laboratory organization



This is what gives Doctors confidence that the system works

A Dearth of Evidence to Support Case for Consolidation of Pathology Services

VL6

“Research suggests that examining past successful consolidation projects and performing **further research on consolidation are merited**”.

Shah, Consolidation of the microbiology laboratory: A mini review of finances and quality of care. *Lab. Medical Winter* **2013**, 44(1), 86

Dancer *et al.*, *J. Hospital Infection* **2015**, 91(4), 292-298. DOI: [0.1016/j.jhin.2015.08.17](https://doi.org/10.1016/j.jhin.2015.08.17)

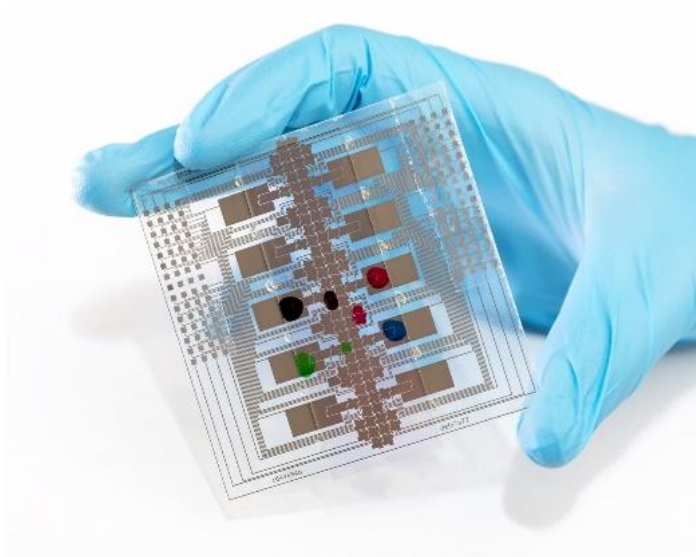
“It is also true to say that there is **minimal scientific or other evidence to justify decisions on service amalgamation.**”

Sautter *et al.*, *J. Clinical Microbiology* **2015**, 53(5), 1467.

“He and his colleagues achieved overall laboratory **cost savings of 20%** as a result of laboratory consolidation at the Detroit Medical Center in the 1980s.”

“Although cost savings associated with core microbiology laboratories are clear, less certain is our understanding of the impact of the core laboratory on patient care.”

Point Of Care Diagnosis



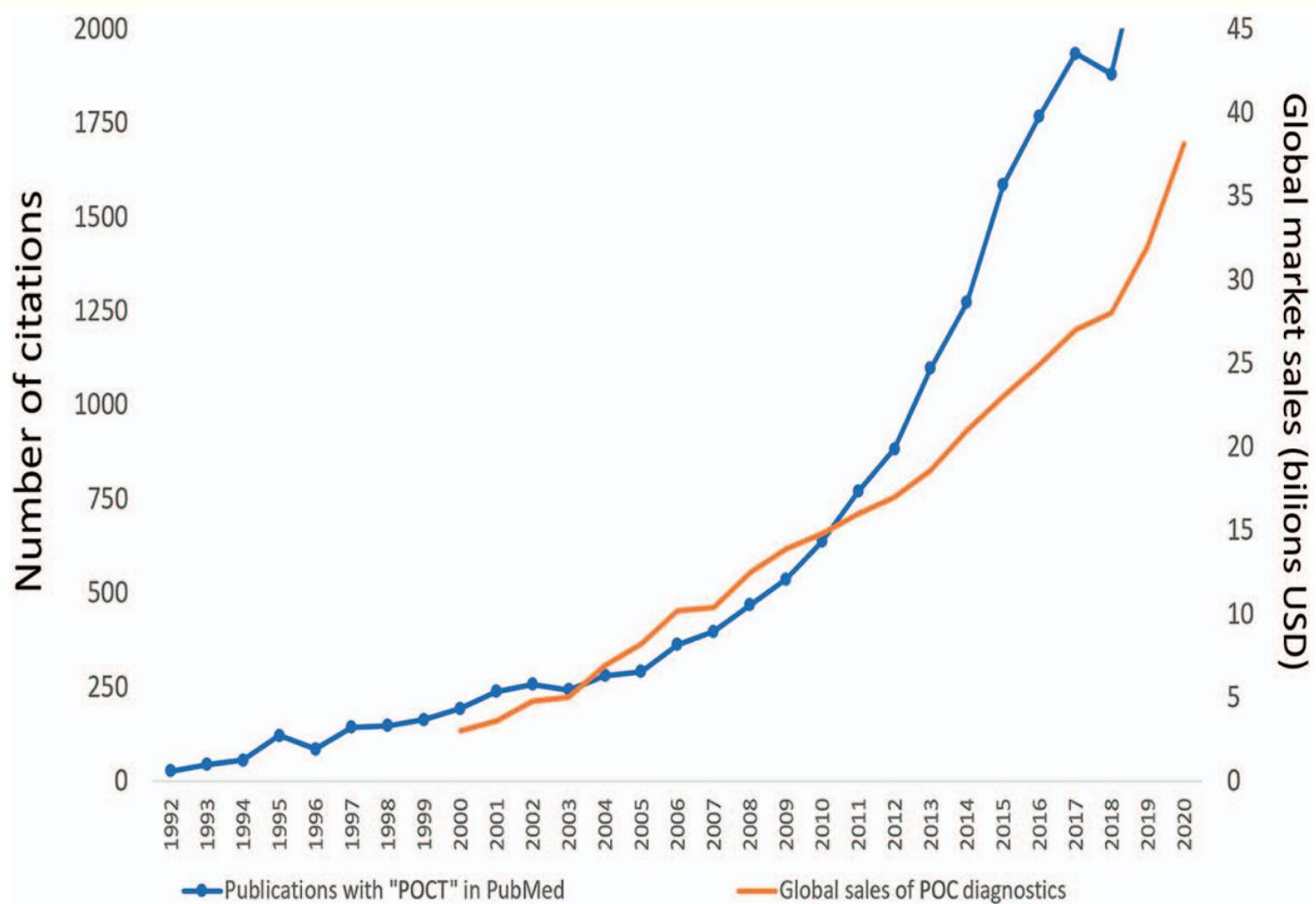
[Lab-on-a-chip test could help prevent disease outbreaks in remote regions: Study](#)

Sheryl Ubelacker, The Canadian Press, Posted Apr 25, 2018
2:05 pm PDT



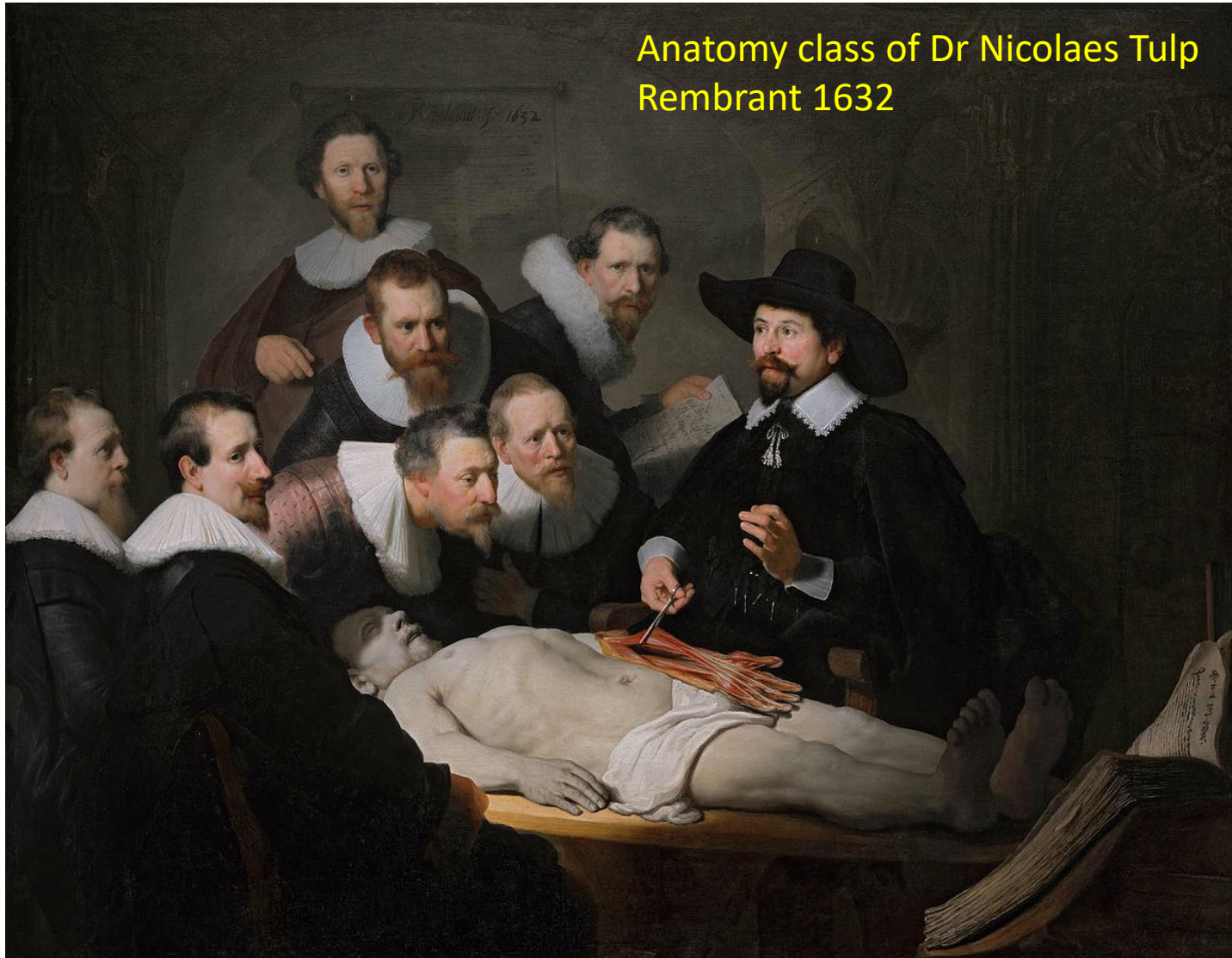
[3 Reasons Why Microfluidics is the Future of Medical Diagnostics](#)

by [Samir Jaber](#) on [September 20, 2019](#)



Glen T. Hansen. Point-of-Care Testing in Microbiology: A Mechanism for Improving Patient Outcomes. *Clinical Chemistry* **2020**, 66(1), 124–137.

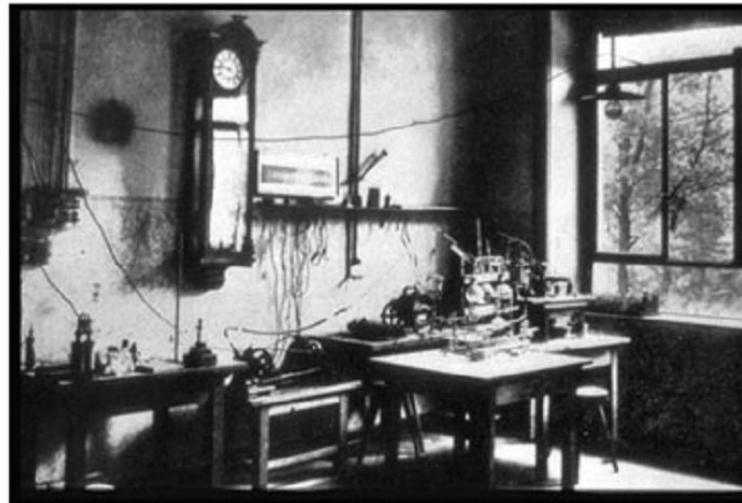
Diagnostic Imaging of Antiquity



Then Came X-ray Imaging - Wilhelm Conrad Röntgen

27Mar1845 – 10Feb1923

Otto Glasser, *Wilhelm Conrad Röntgen and the early history of the Roentgen rays*. London, 1933. National Library of Medicine.



The room where he discovered X-rays



Hand of Mrs Wilhelm Roentgen
First X-ray image, 1895

Different materials have different capacity to attenuate X-rays

<https://www.nist.gov/pml/x-ray-mass-attenuation-coefficients>

Ultrasound Imaging



YJ-580 Full-Digital Laptop Ultrasound Scanner - **\$1,500 Alibaba**



3D view of blood flow through the chambers of a fetal heart using the GE Healthcare fetalHQ analysis software.



YJ-U10T Forermed scanner - **\$10,000 Alibaba**

MRI Scanner - Siemens 1.5 T

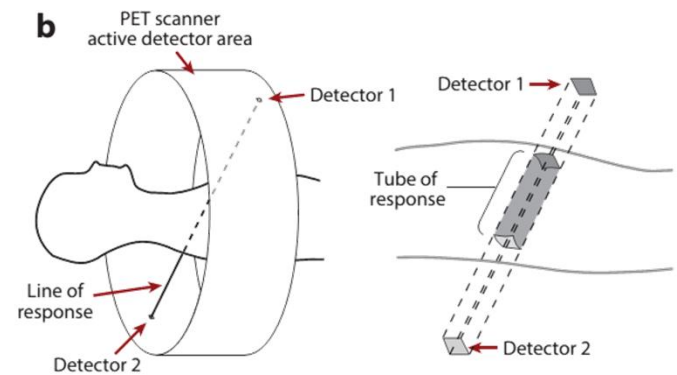
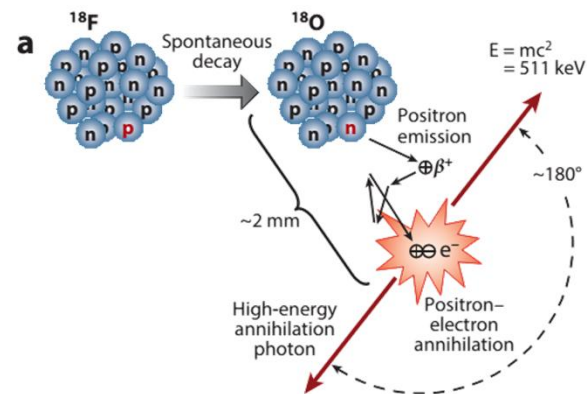
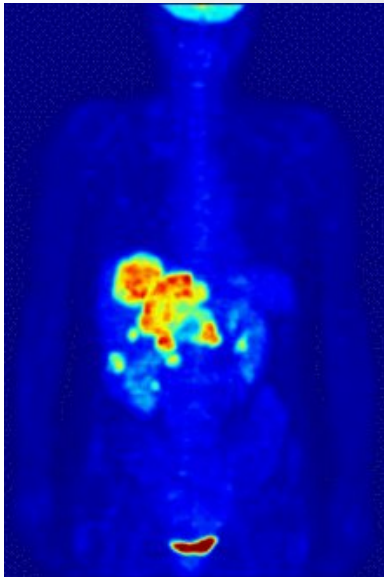
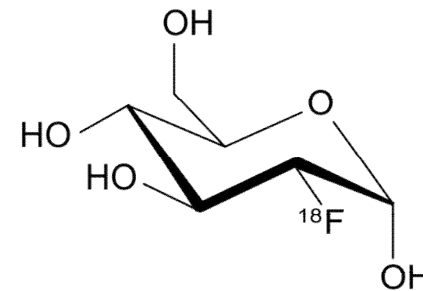
MAGNETOM Sola Cardiovascular Edition



GE Healthcare PET-CT Scanner, Discovery IQ



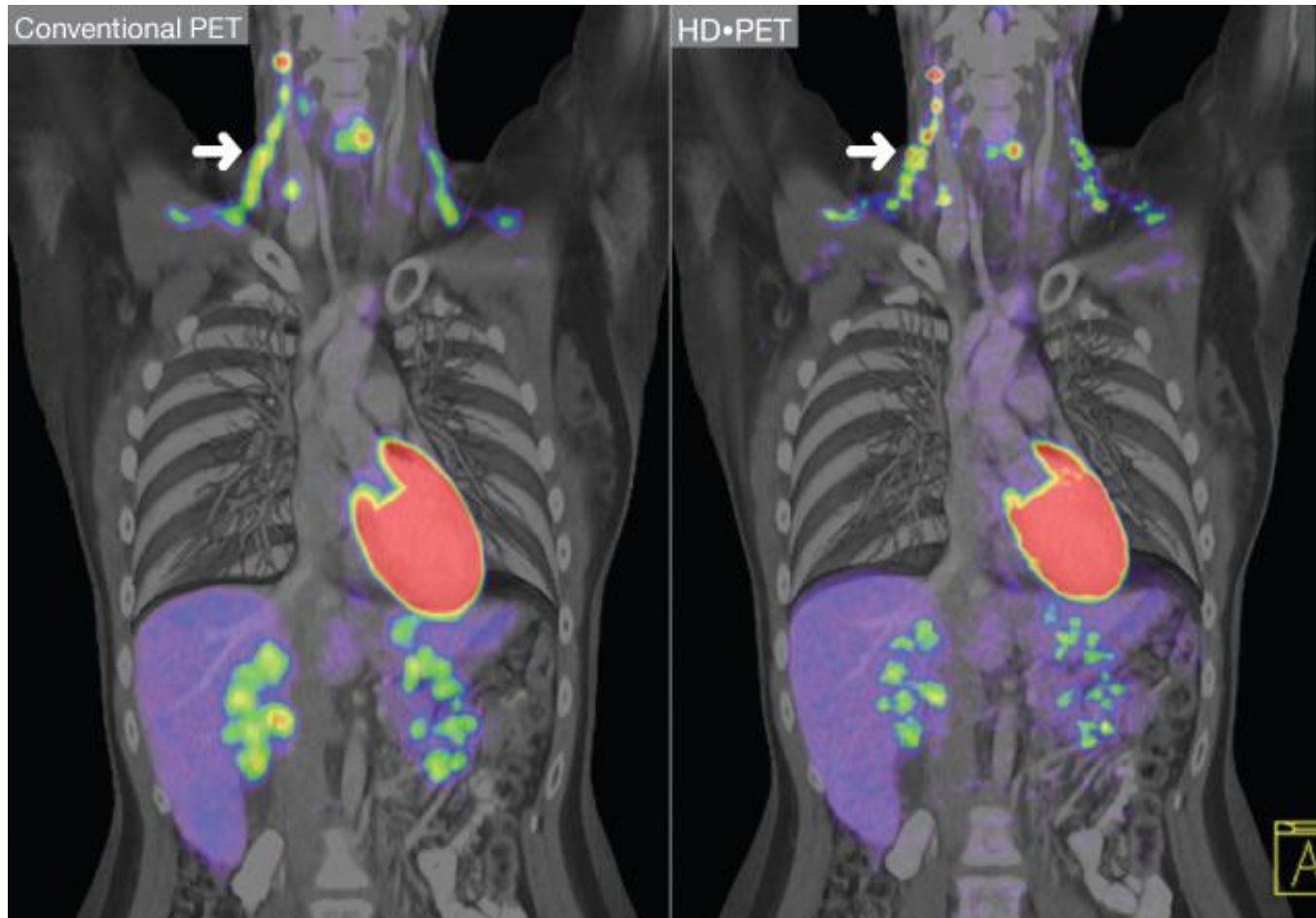
Fluorodeoxyglucose [^{18}F]FDG - $\text{C}_6\text{H}_{11}\text{FO}_5$



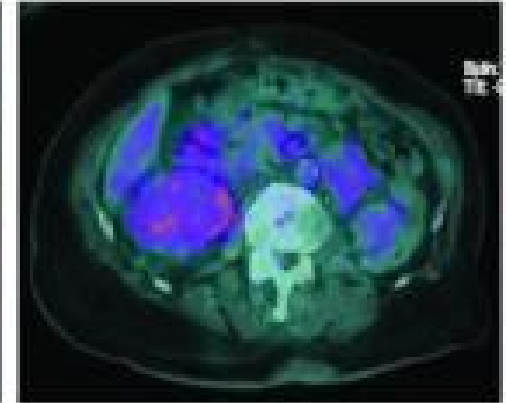
Whole-body PET scan using ^{18}F -FDG to show liver metastases of a colorectal tumor

[https://en.wikipedia.org/wiki/Fludeoxyglucose_\(18F\)](https://en.wikipedia.org/wiki/Fludeoxyglucose_(18F))

Requirements for Maximum Spatial Resolution, Contrast & Speed



<http://www.molecularimaging.net/topics/practice-management/quality/pet-scanning-meets-high-definition>



Ultrasound (US)

Computed
Tomography (CT)

Magnetic Resonance
Imaging (MRI)

Nuclear Medicine (PET/
CT, SPECT/CT)

Spatial Resolution:

5-10 mm
very good

5 mm
superb

5 mm
superb

10-15 mm
low

Sensitivity to Target:

n/a
(microbubbles?)

n/a
(Au nanoparticles?)

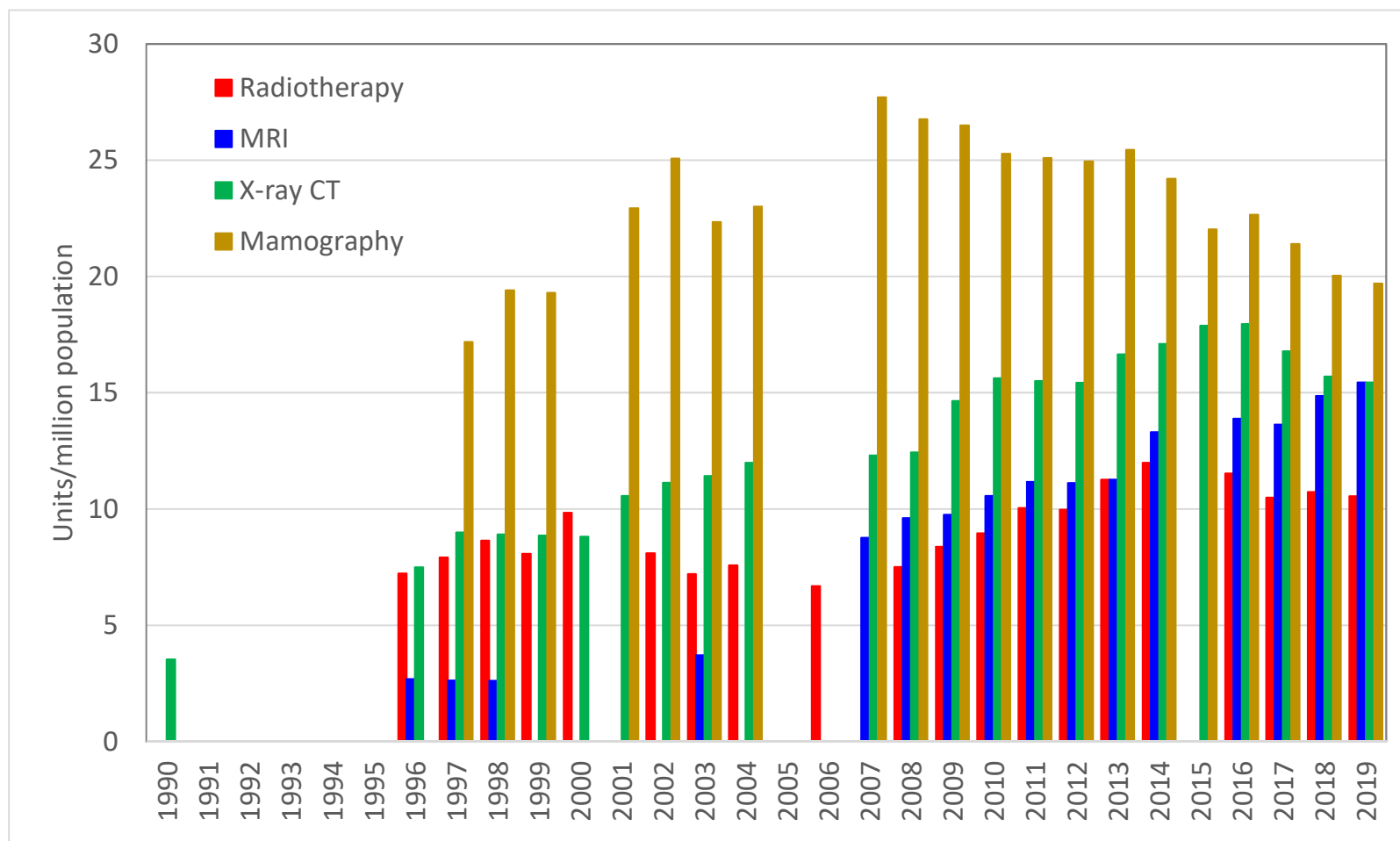
10^{-3} mol/L
Fe/Gd nanoparticles

10^{-12} mol/L
radioisotopes

How Well Equipped Are We?



MRI - 15 units per million of population in 2020



Victor Luca



OIA Request to the
Ministry of Health

16 September 2020

Victor Luca

By email: victorlucanz@gmail.com
Ref: H202006251

Dear Victor Luca

Response to your request for official information

Thank you for your request under the Official Information Act 1982 (the Act) to the Ministry of Health (the Ministry) which was refined on 27 August 2020 to:

"Any documents including parliamentary papers, white papers and so forth that underpinned the science and business case for the consolidation of New Zealand's pathology laboratory services"

New Zealand has a devolved health and disability system in which district health boards (DHBs) are responsible for selecting and managing their providers of laboratory services. As such, the Ministry does not hold any information on the science and business case for the consolidation of New Zealand's pathology laboratory services. Therefore, your request is refused under section 18(g) of the Act. You may wish to contact each individual DHB regarding your request.

Under section 28(3) of the Act you have the right to ask the Ombudsman to review any decisions made under this request.

Please note that this response, with your personal details removed, may be published on the Ministry website.

Yours sincerely

Dr Andrew Simpson
Chief Medical Officer

From: Maria.Moller@bopdhb.govt.nz

Subject: OIA Request - Pathology & Laboratory Services

To: victorlucanz@gmail.com

21-Oct-20

On behalf of Debbie Brown, Senior Advisor Governance and Quality

Dear Mr Luca

We refer to your request of 13 October 2020.

"Any documents including parliamentary papers, white papers and so forth that underpinned the science and business case for the consolidation of New Zealand's pathology laboratory services".

Pursuant to clause 18(e) of the Official Information Act the BOPDHB cannot provide this information on the grounds that the information you have requested does not exist the DHB.

Kind regards.

Maria Moller

PA to Senior Advisor Governance & Quality

Governance & Quality / CEO Office

Bay of Plenty District Health Board | Tauranga Hospital | Cameron Road | Private Bag 12024 | Tauranga 3143

T: 07 579 8545 | E: maria.moller@bopdhb.govt.nz | W: www.bopdhb.govt.nz



We refer to your request of 13 October 2020.

"Any documents including parliamentary papers, white papers and so forth that underpinned the science and business case for the consolidation of New Zealand's pathology laboratory services".

Pursuant to clause 18(e) of the Official Information Act the BOPDHB cannot provide this information on the grounds that the information you have requested does not exist the DHB.

Response to 2nd OIA request to BOPDHB

Date of response: 11-Jun-21

Request

Please provide the following information:

1. I wish to know if the BOPDHB has any information relating to past decisions to contract diagnostic medical laboratory services to the private company Pathlab or other private entities rather than keep service provision in the public domain?

2. I am similarly interested in information relating to the privatization of radiology services in the Bay of Plenty.

In other words, how is the privatization of such diagnostic services being justified?

By 'information' I mean documents such as business cases, science cases, white papers, meeting minutes, reports and so forth.

Response

Pursuant to clause 18(e) of the Official Information Act the BOPDHB cannot provide this information on the grounds that the information does not exist.

As of today, neither the Bay of Plenty DHB nor the Ministry of Health has been able to point me to any documents that provide evidence for enhanced economic efficiencies or improved patient outcomes resulting from reforms undertaken over the past 40 years.

Why not! Could it be that there is no evidence.

The medical-industrial complex generates large profits for the private sector but largely depends on government spending.

Mainstream explanations for privatisation (Megginson & Netter, 2001) claim that the private sector increases economic efficiency, but critical scholars have shown that the evidence is far from conclusive.

The nobel prize winning economist Professor Joseph Stiglitz observes that ‘the theoretical case for privatization is, at best, weak or non-existent’.

Mercille, J. Neoliberalism and health care: the case of the Irish nursing home sector.
Critical Public Health **2018**, 28, 546-559.

Series of 1928



My Tuppence Worth On Money

**REDEEMABLE IN GOLD ON DEMAND
AT THE UNITED STATES TREASURY,
OR IN GOLD OR LAWFUL MONEY
AT ANY FEDERAL RESERVE BANK.**

Bretton Woods conference 1944
Established the new world order

The US effectively abandoned the gold
standard in 1933.

By 1971 the US had completely severed the
link between the dollar and gold.

1971 ushered in a new era of unfettered
money creation.



**THIS NOTE IS LEGAL TENDER
FOR ALL DEBTS, PUBLIC AND PRIVATE**

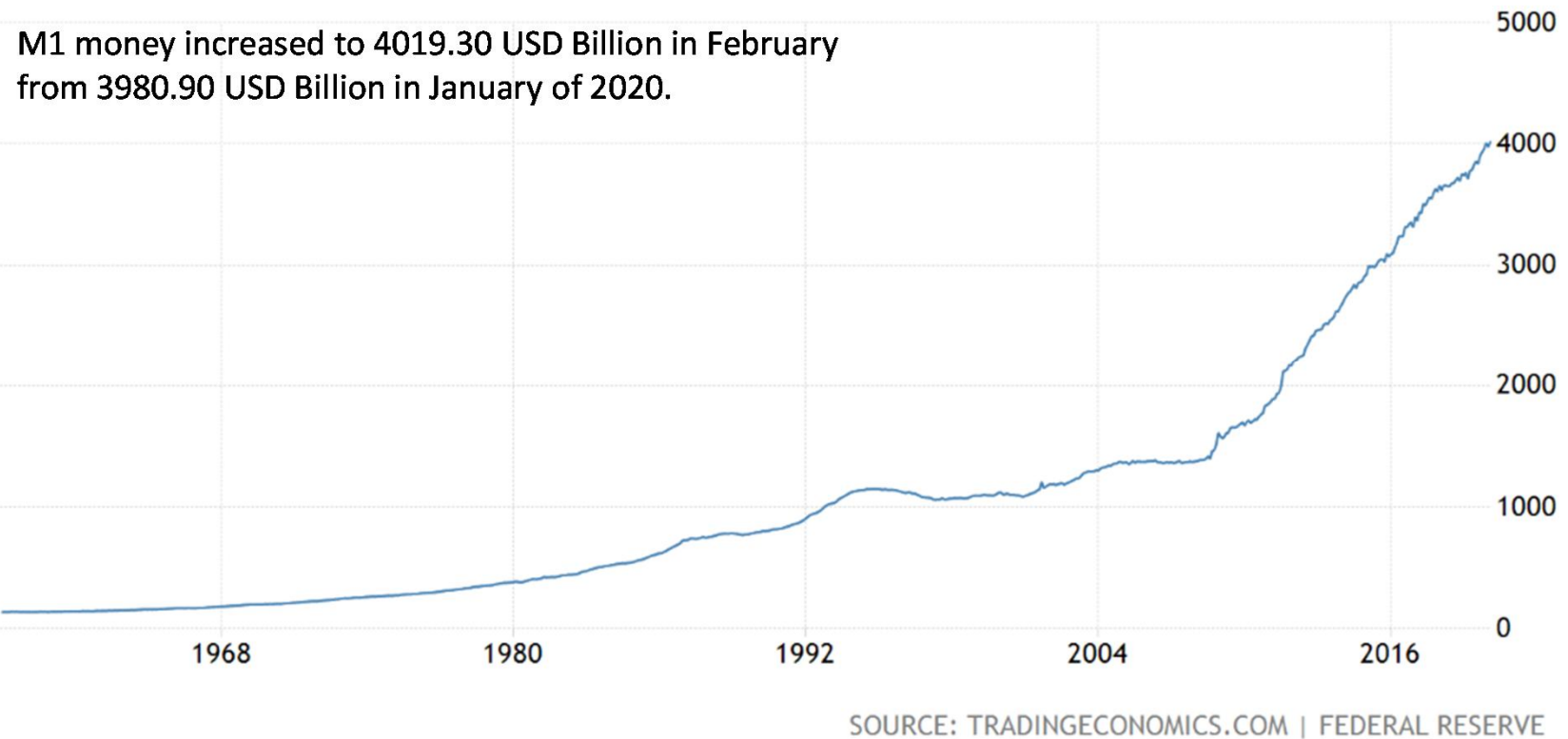
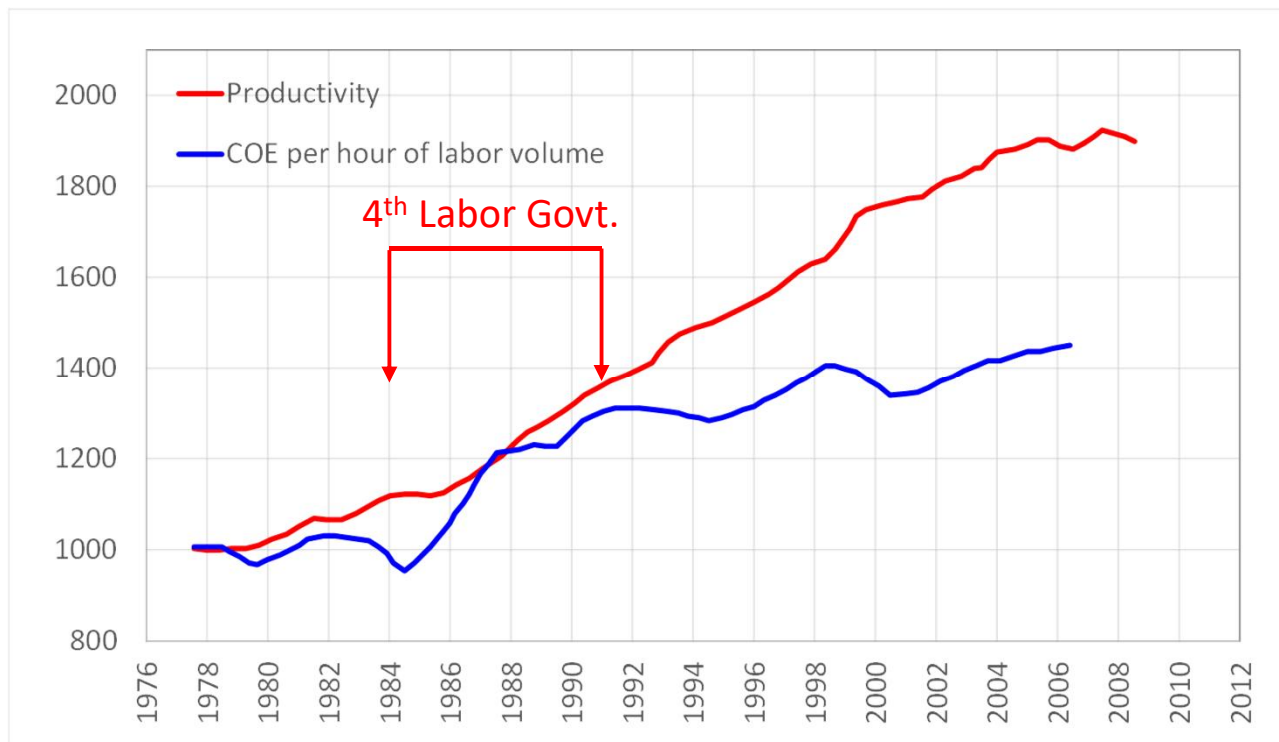
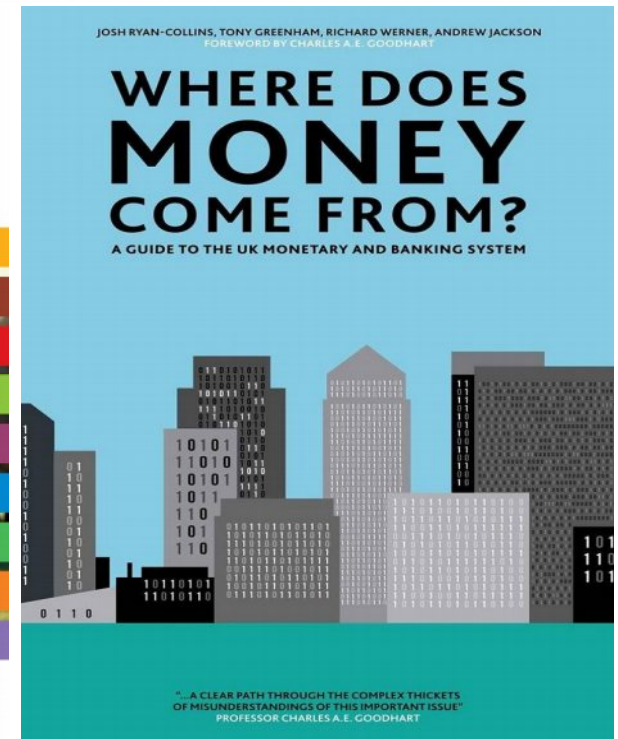
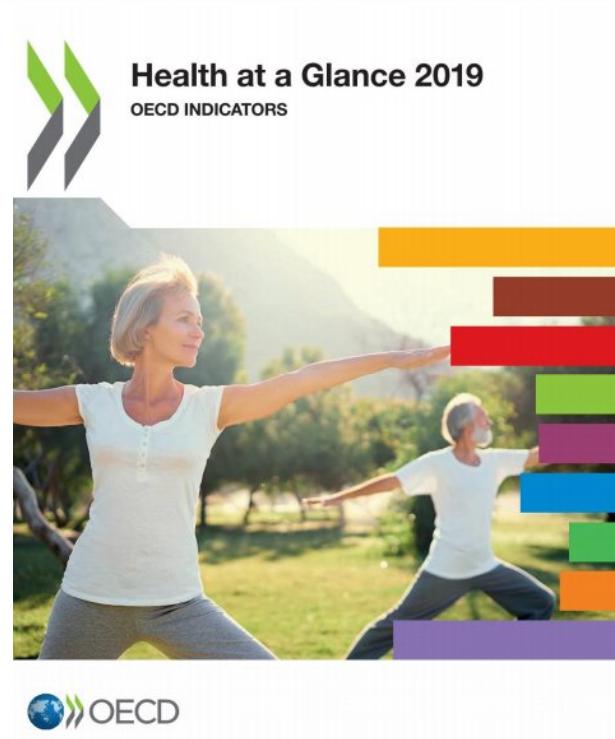
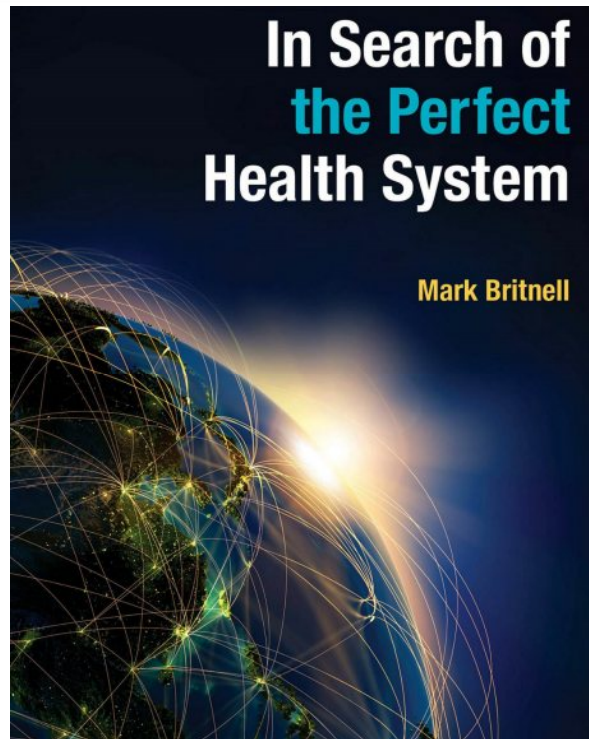


Figure 1. Exponential growth of M1 money supply. Source: Trading Economics, Federal Reserve.



Bibliography



The End