

Models in Osteopathy and in other professions

OsEAN– 9th Open Forum – 7th November 2024

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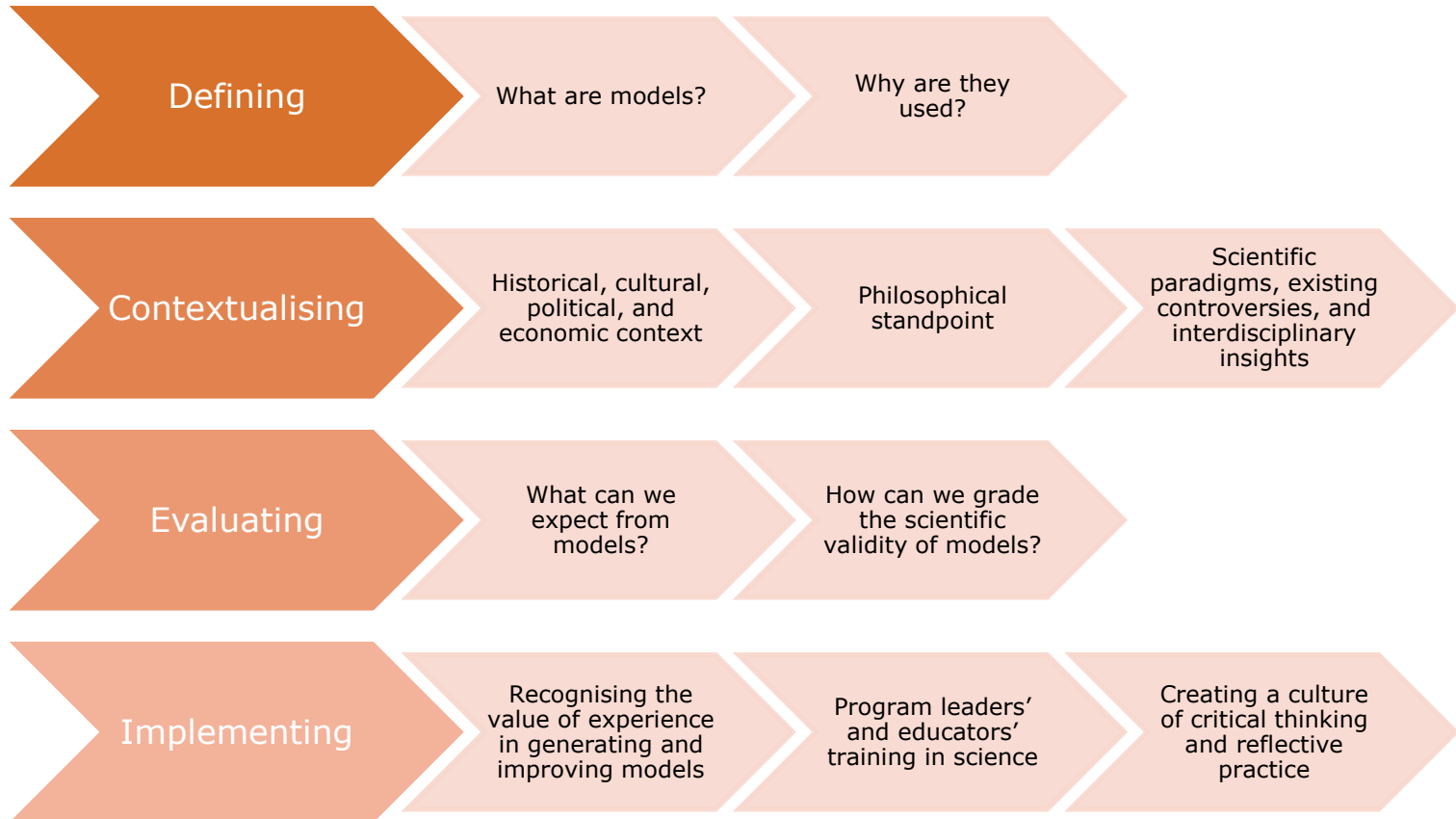


Declaration of interest

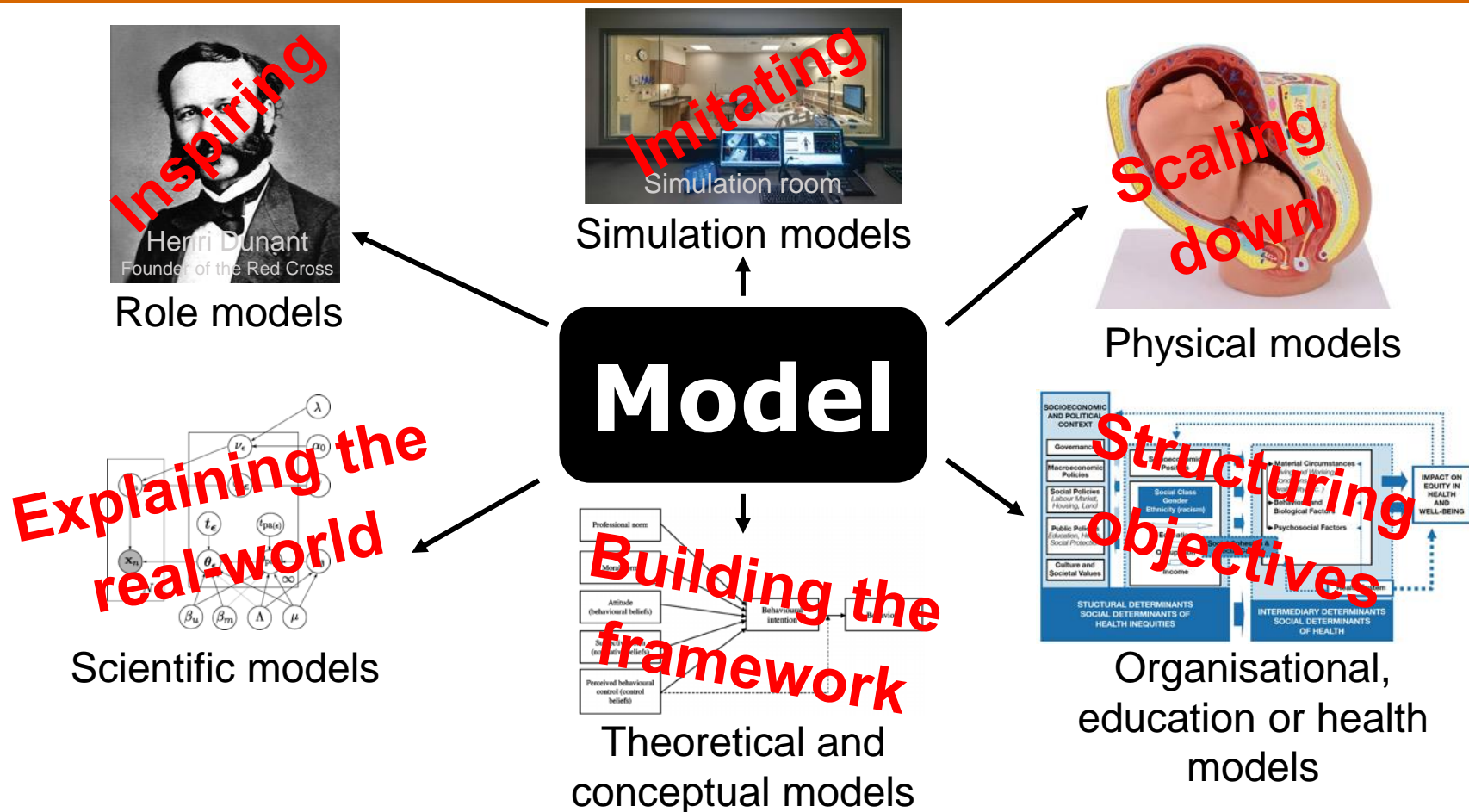


- Independent clinician with interest in promoting osteopathy to provide care for patients.
- Former Professor at the University of Applied Sciences with his own company, OsteoPole, dedicated to promoting research and evidence informed practice in osteopathy.
- Receives funds for research from the Swiss Osteopathic Science Foundation (SOSF), University Research Funds and National Funds.
- Interest in promoting research
 - Board of Trustees COME
 - Scientific commission SOSF
 - Associate Editor : IJOM, Mains Libres

Plan



Defining models



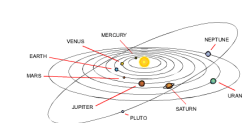
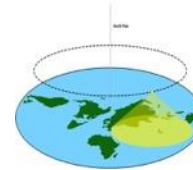
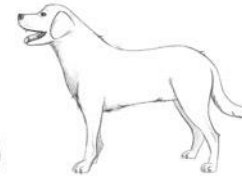
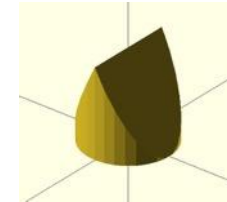
Model

Not the real "thing"

Simplified

More or less accurate

More or less valid



Why are they used?

Explain
health &
disease

Develop and
evaluate
interventions

Guide clinical
decision-
making

Manage
health
systems

Facilitate
education

Framingham risk score



Andersson et al. *Nat Rev Cardiol.*
2019;16(11):687-698.
doi:[10.1038/s41569-019-0202-5](https://doi.org/10.1038/s41569-019-0202-5)

Tsao & Vasan. *Int J Epidemiol.*
2015;44(6):1800-1813.
doi:[10.1093/ije/dyv337](https://doi.org/10.1093/ije/dyv337)

FRAMINGHAM RISK SCORE (FRS) Estimation of 10-year Cardiovascular Disease (CVD) Risk

Step 1¹

In the "points" column enter the appropriate value according to the patient's age, HDL-C, total cholesterol, systolic blood pressure, and if they smoke or have diabetes. Calculate the total points.

Risk Factor	Risk Points		Points		
	Men	Women			
Age					
30-34	0	0			
35-39	2	2			
40-44	5	4			
45-49	6	5			
50-54	8	7			
55-59	10	8			
60-64	11	9			
65-69	12	10			
70-74	14	11			
75+	15	12			
HDL-C (mmol/L)					
> 1.6	-2	-2			
1.3-1.6	-1	-1			
1.2-1.29	0	0			
0.9-1.19	1	1			
< 0.9	2	2			
Total Cholesterol					
< 4.1	0	0			
4.1-5.19	1	1			
5.2-6.19	2	3			
6.2-7.2	3	4			
> 7.2	4	5			
Systolic Blood Pressure (mmHg)	Not Treated	Treated	Not Treated	Treated	
< 120	-2	0	-3	-1	
120-129	0	2	0	2	
130-139	1	3	1	3	
140-149	2	4	2	5	
150-159	2	4	4	6	
160+	3	5	5	7	
Smoker	Yes	4	3		
	No	0	0		
Diabetes	Yes*	3	4		
	No	0	0		
Total Points					

1. Adapted from O'Gara et al. (2013). General cardiovascular risk profile for use in primary care. The Framingham Heart Study. *Circ* 2008;117:243-53.
2. Adapted from Greenland et al. (2013). 2013 Canadian Cardiovascular Society/Canadian guidelines for the diagnosis and treatment of dyslipidaemia and prevention of cardiovascular disease in the adult. *Can J Cardiol* 2010;26(10):1447-59.
3. Adapted from Anderson et al. (2013). 2013 Update of the Canadian Cardiovascular Society guidelines for the diagnosis and treatment of dyslipidaemia for the prevention of cardiovascular disease in the adult. *Can J Cardiol* 2013;29(10):1511-162.
4. Adapted from Pearson et al. (2013). Canadian Cardiovascular Society Guidelines for the Management of Dyslipidaemia for the Prevention of Cardiovascular Disease in Adults. *Can J Cardiol* 2013;29(10):1119-1130.
5. Lipid: appropriate B statin, CVD: non-cardiovascular disease, FRS: Framingham Risk Score, HDL-C: high-density lipoprotein cholesterol, LDL-C: low-density lipoprotein cholesterol.
6. For most patients with diabetes, calculating their FRS is not needed for treatment decisions in primary prevention as a statin would be indicated in most of the population, including ages > 40 yrs old and ages > 30 yrs & DM > 15 yrs duration and/or microvascular disease.



Canadian Cardiovascular Society

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Patient's Name: _____ Date: _____

Step 2¹

Using the total points from Step 1, determine the 10-year CVD risk* (%).

Total Points	Men	Women
-3 or less	< 1	< 1
-2	1.1	1.1
-1	1.4	1.4
0	1.6	1.2
1	1.9	1.5
2	2.3	1.7
3	2.8	2.0
4	3.3	2.4
5	3.9	2.8
6	4.7	3.3
7	5.6	3.9
8	6.7	4.5
9	7.9	5.3
10	9.4	6.3
11	11.2	7.3
12	13.2	8.6
13	15.6	10.0
14	18.4	11.7
15	21.6	13.7
16	25.3	15.9
17	29.4	18.5
18	> 30	21.3
19	> 30	24.8
20	> 30	28.5
21+	> 30	> 30

* Double cardiovascular disease risk percentages for individuals between the ages of 30 and 59 without diabetes if the presence of a positive history of premature cardiovascular disease is present in a first-degree relative before 50 years of age for men and before 60 years of age for women. This is known as the modified Framingham Risk Score.²

Step 4^{3,4,5}

Using 10-year CVD risk from Step 2, determine if patient is Low, Intermediate or High risk¹

Risk Level ¹	Initiate Statin Treatment ^{1b}	Consider Add-on Therapy or Treatment Intensification
High FRS ≥ 20%	Consider treatment in all (Strong, High)	If LDL-C ≥ 2.6 mmol/L, or Non-HDL-C ≥ 2.6 mmol/L, or ApoB ≥ 0.80 g/L, on maximally tolerated statin dose
Intermediate FRS 10-19%	If LDL-C ≥ 3.3 mmol/L, or (Strong, Moderate) If LDL-C ≥ 3.3 mmol/L, initiate IL • non-HDL-C ≥ 4.3 mmol/L, or • ApoB ≥ 1.05 g/L, or (Strong, Moderate) • Plus a 30 yrs and women ≥ 40 yrs with 1 additional risk factor: low HDL-C, impaired fasting glucose, high waist circumference, smoker, or hypertension, or with CAC ≥ 2 mm ² , CAC ≥ 6 AU, family history of premature CAD, Lp(a) ≥ 100 mg/L (≥ 30 mg/dL)	If LDL-C ≥ 2.6 mmol/L, or Non-HDL-C ≥ 2.6 mmol/L, or ApoB ≥ 0.80 g/L, on maximally tolerated statin dose
Low FRS < 10%	Statin generally not indicated	N/A
Statin-Indicated Conditions^{1b} (Consider treatment in all; Strong, High)		
LDL-C ≥ 5 mmol/L, or non-HDL-C ≥ 3.8 mmol/L, or ApoB ≥ 1.45 g/L (H or genetic dyslipidaemia)		If LDL-C ≥ 2.6 mmol/L, or < 50% reduction, or non-HDL-C ≥ 3.3 mmol/L, or ApoB ≥ 0.80 g/L
Most patients with diabetes: • Age ≥ 40 yrs old or Age ≥ 30 yrs & DM ≥ 15 yrs duration and/or Microvascular disease		If LDL-C ≥ 3.0 mmol/L, or non-HDL-C ≥ 2.6 mmol/L, or ApoB ≥ 0.80 g/L, on maximally tolerated statin dose
Chronic Kidney Disease: • Age ≥ 50 yrs & eGFR < 60 mL/min/1.73 m ² or ACR ≥ 1 mg/mL		
Atherosclerotic Cardiovascular Disease (ASCVD): • Previous MI, stroke, or transient ischaemic attack (TIA), or • Stable angina, documented coronary artery disease (CAD) using angiography, or • Stroke, TIA, documented carotid disease, or • Peripheral arterial disease, abdominal aortic aneurysm (AAA) < 5.5, or • Abdominal aortic aneurysm (AAA) - abdominal aorta > 3.0 cm or previous aneurysm surgery		If LDL-C ≥ 1.8 mmol/L, or non-HDL-C ≥ 2.4 mmol/L, or ApoB ≥ 0.70 g/L, on maximally tolerated statin dose

^{1b} Statin indicated condition refers to any condition for which pharmacotherapy with statins is indicated, and contains all documented ASCVD conditions, as well as other high-risk primary prevention conditions in the absence of ASCVD.

Ottawa ankle rules

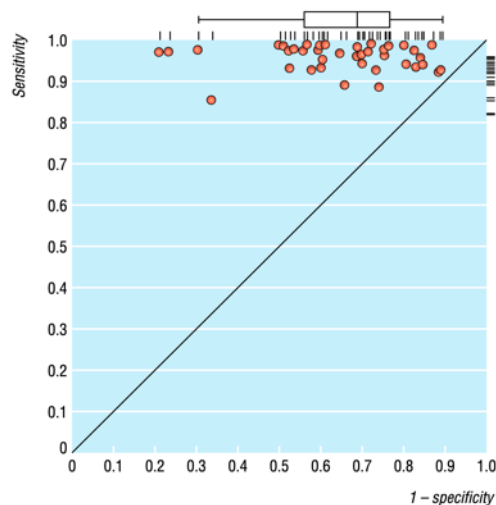


Fig 2 Receiver operating characteristics plot of all included studies (39 2x2 tables)

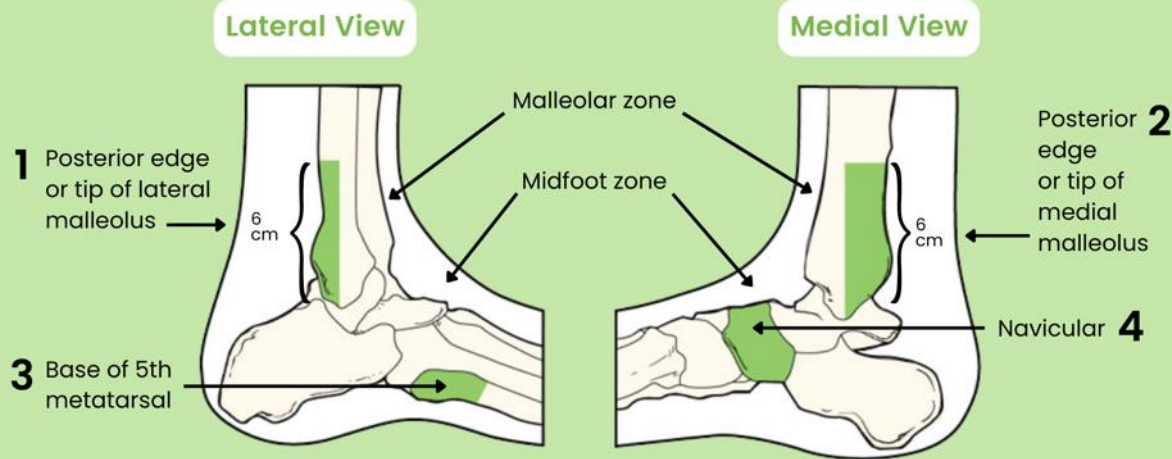
Bachmann. *BMJ*. 2003;326(7386):417-417.

doi:[10.1136/bmj.326.7386.417](https://doi.org/10.1136/bmj.326.7386.417)

Stiell et al. *Ann Emerg Med*. 1992;21(4):384-390.

doi:[10.1016/s0196-0644\(05\)82656-3](https://doi.org/10.1016/s0196-0644(05)82656-3)

Wallace et al. *BMC medical informatics and decision making*. 2011;11:62. doi:[10.1186/1472-6947-11-62](https://doi.org/10.1186/1472-6947-11-62)



An ankle x-ray series is required only if there is any pain in malleolar zone and any of these findings:

- Bone tenderness at **1 & 2**
- Inability to bear weight both immediately and in emergency department

A foot x-ray is required only if there is any pain in midfoot zone and any of these findings:

- Bone tenderness at **3 & 4**
- Inability to bear weight both immediately and in emergency department

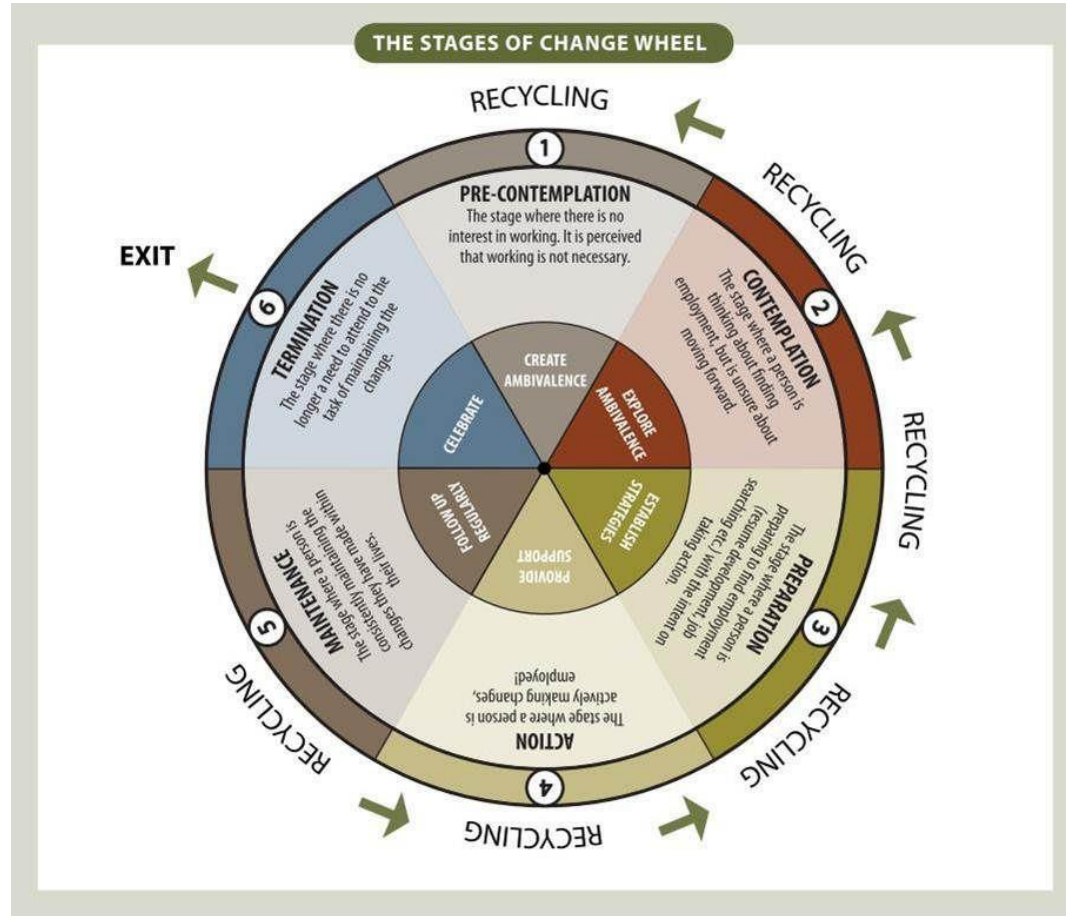
Transtheoretical model

Prochaska & Velicer. *Am J Health Promot.* 1997;12(1):38-48.

doi:[10.4278/0890-1171-12.1.38](https://doi.org/10.4278/0890-1171-12.1.38)

Jiang et al. *Addictive Behaviors.* 2017;73:216-235.

doi:[10.1016/j.addbeh.2017.05.023](https://doi.org/10.1016/j.addbeh.2017.05.023)



Motivational interviewing and physical activities

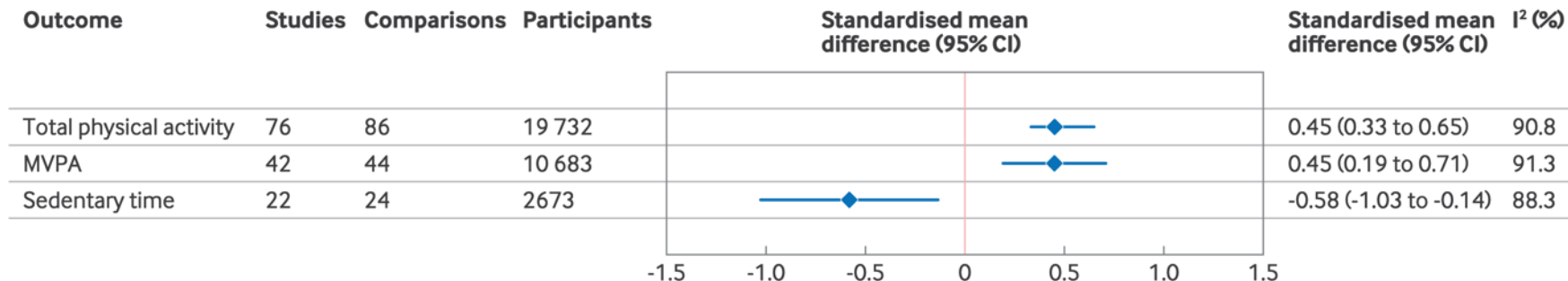
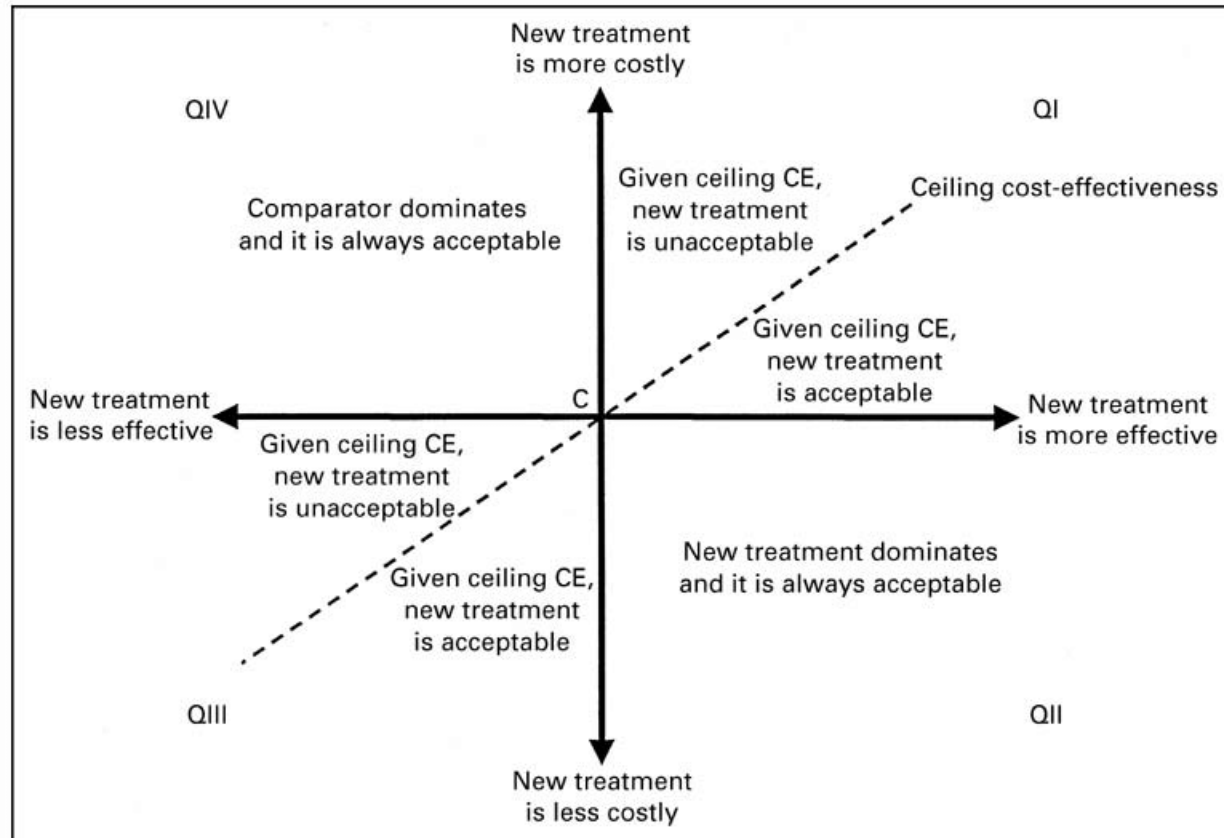


Fig 3 | Summary standardised mean differences for overall meta-analysis. CI=confidence interval; MVPA=moderate to vigorous physical activity

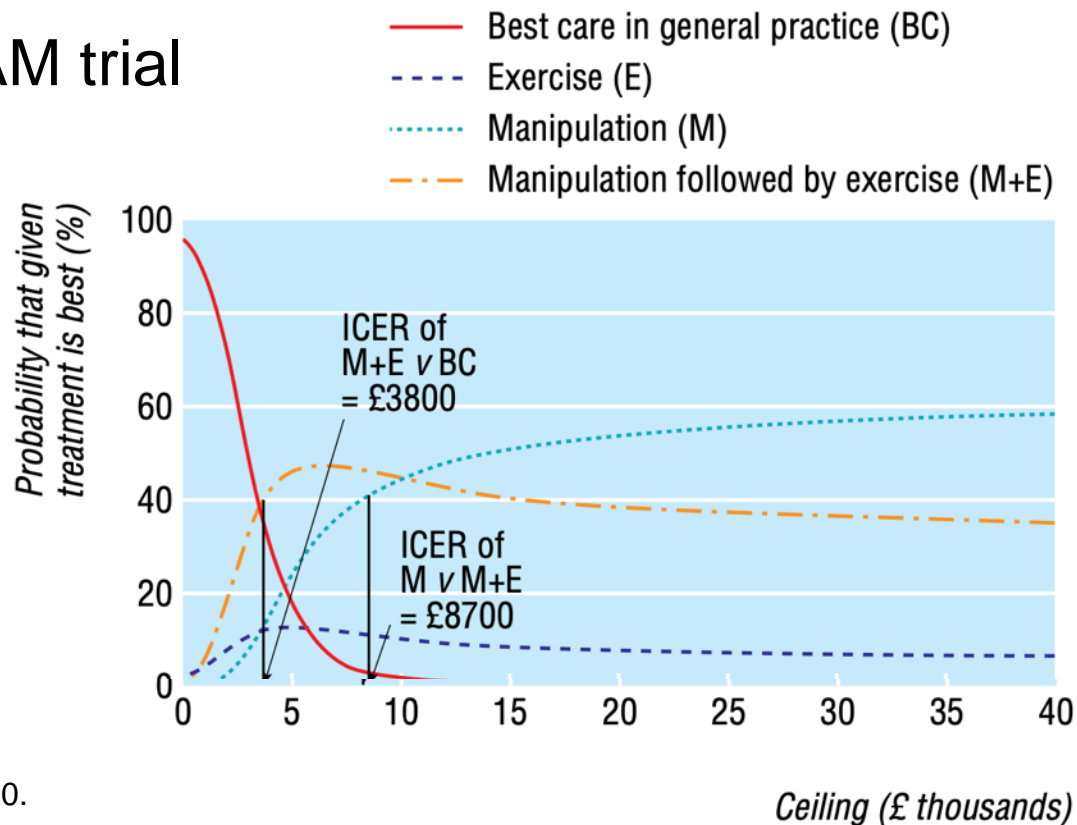
Zhu et al. *BMJ*. Published online July 10,
2024:e078713. doi:[10.1136/bmj-2023-078713](https://doi.org/10.1136/bmj-2023-078713)

Cost-effectiveness model



Maniadakis & Gray.
The Journal of Bone and Joint Surgery British volume. 2000;82-B(1):2-8.
doi:[10.1302/0301-620X.82B1.0820002](https://doi.org/10.1302/0301-620X.82B1.0820002)

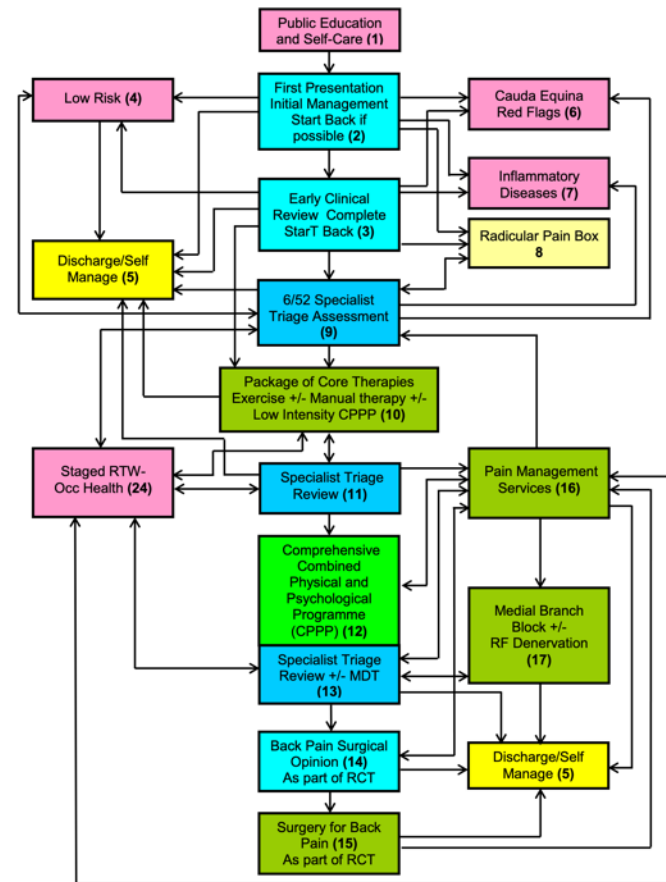
Cost-effectiveness – BEAM trial



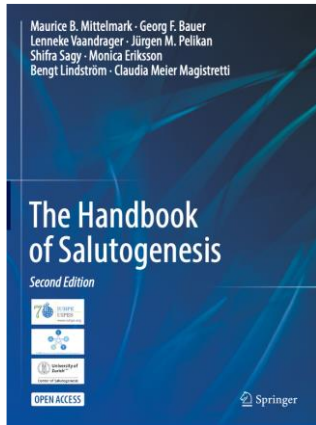
UK BEAM Trial Team. *BMJ*. 2004;329(7479):1381-0.
doi:[10.1136/bmj.38282.607859.AE](https://doi.org/10.1136/bmj.38282.607859.AE)

Clinical Pathway for Low Back and Radicular Pain management in the UK

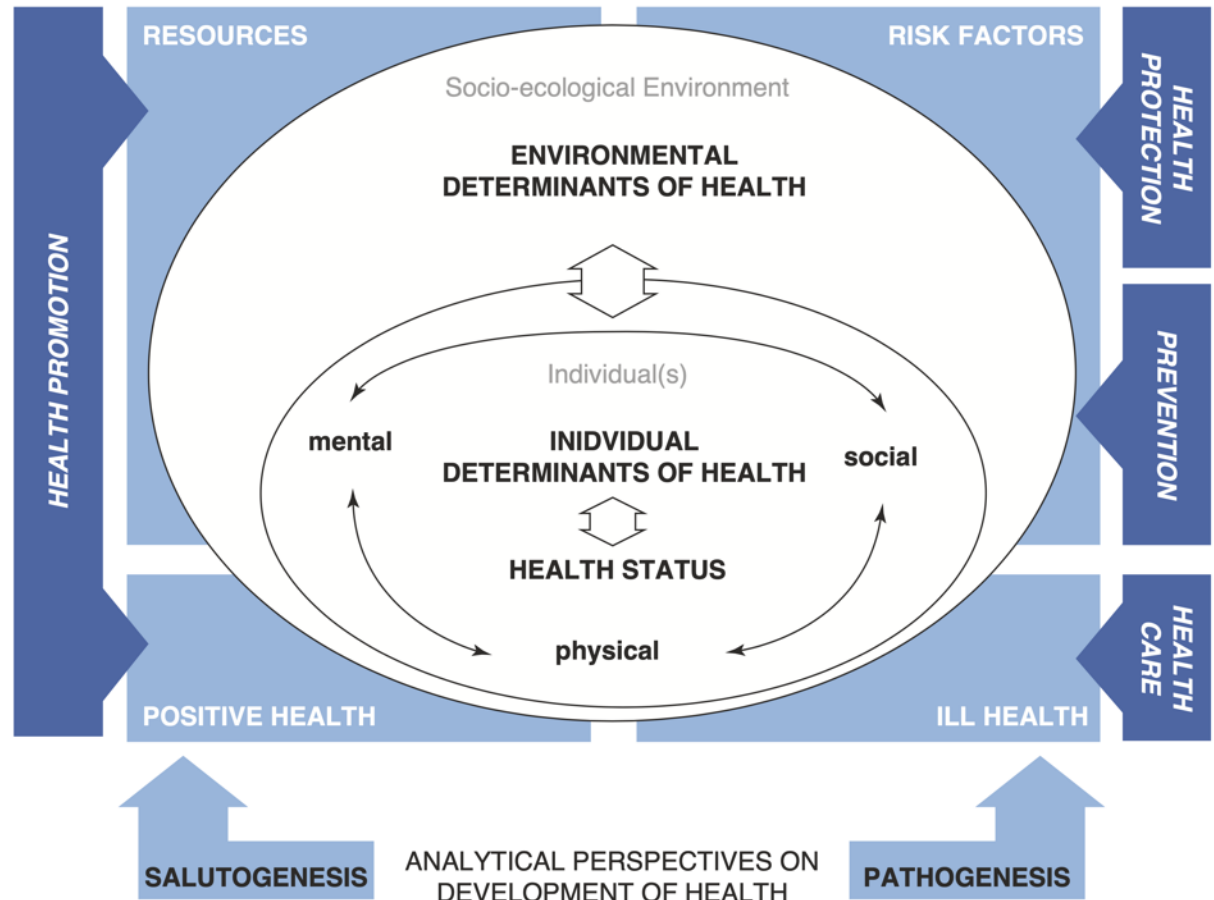
NHS England. Trauma Programme of Care.
2nd ed 2017



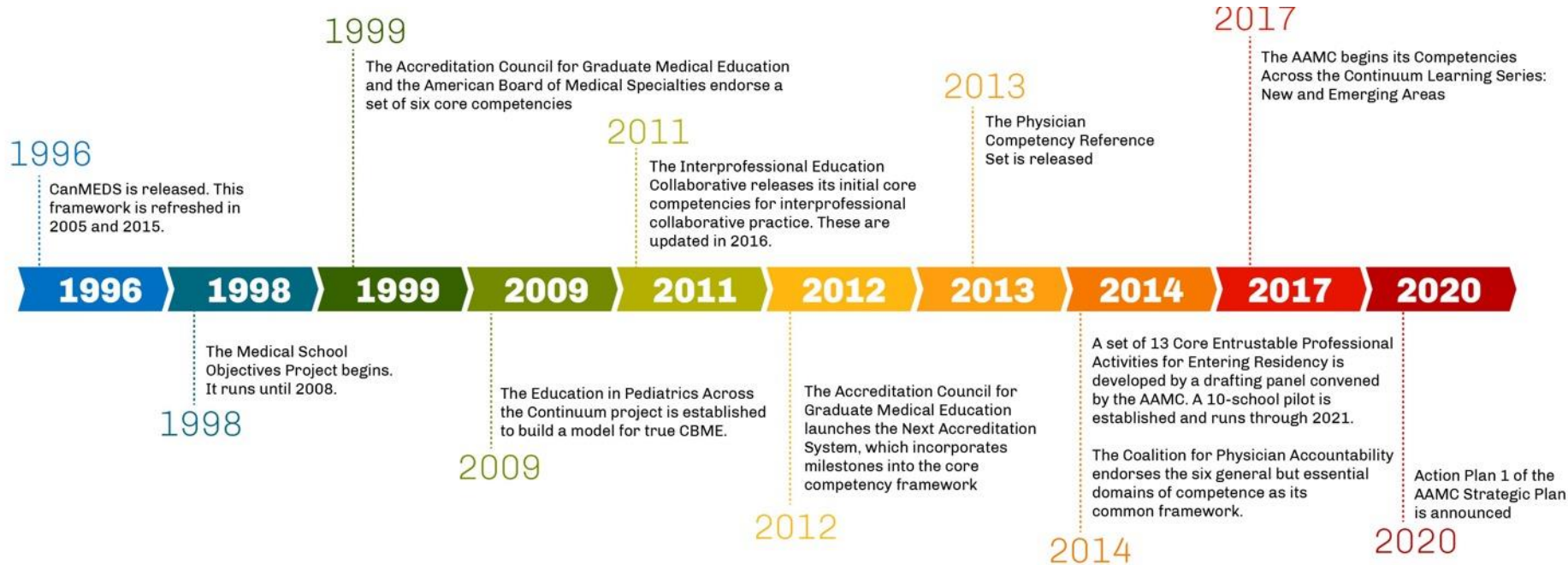
The salutogenesis model



Mittelmark et al., eds. *The Handbook of Salutogenesis*. Springer International Publishing; 2022.
doi:[10.1007/978-3-030-79515-3](https://doi.org/10.1007/978-3-030-79515-3)



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Osteopathic Practice Standards[Home](#)[About](#)[Overview](#)[Themes](#)

The Osteopathic Practice Standards set out the standards of conduct, ethics and competence required of osteopaths to ensure high-quality care for patients.

A. Communication and patient partnership

This theme sets out the standards relating to communication, the formation of effective patient partnerships, and consent.

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B. Knowledge, skills and performance

All osteopaths must have the knowledge and skills to support their practice as primary healthcare professionals, and must maintain and develop these throughout their careers.

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C. Safety and quality in practice

Osteopaths must deliver high-quality and safe healthcare to patients. This theme sets out the standards in relation to the delivery of care.

[READ MORE >](#)

D. Professionalism

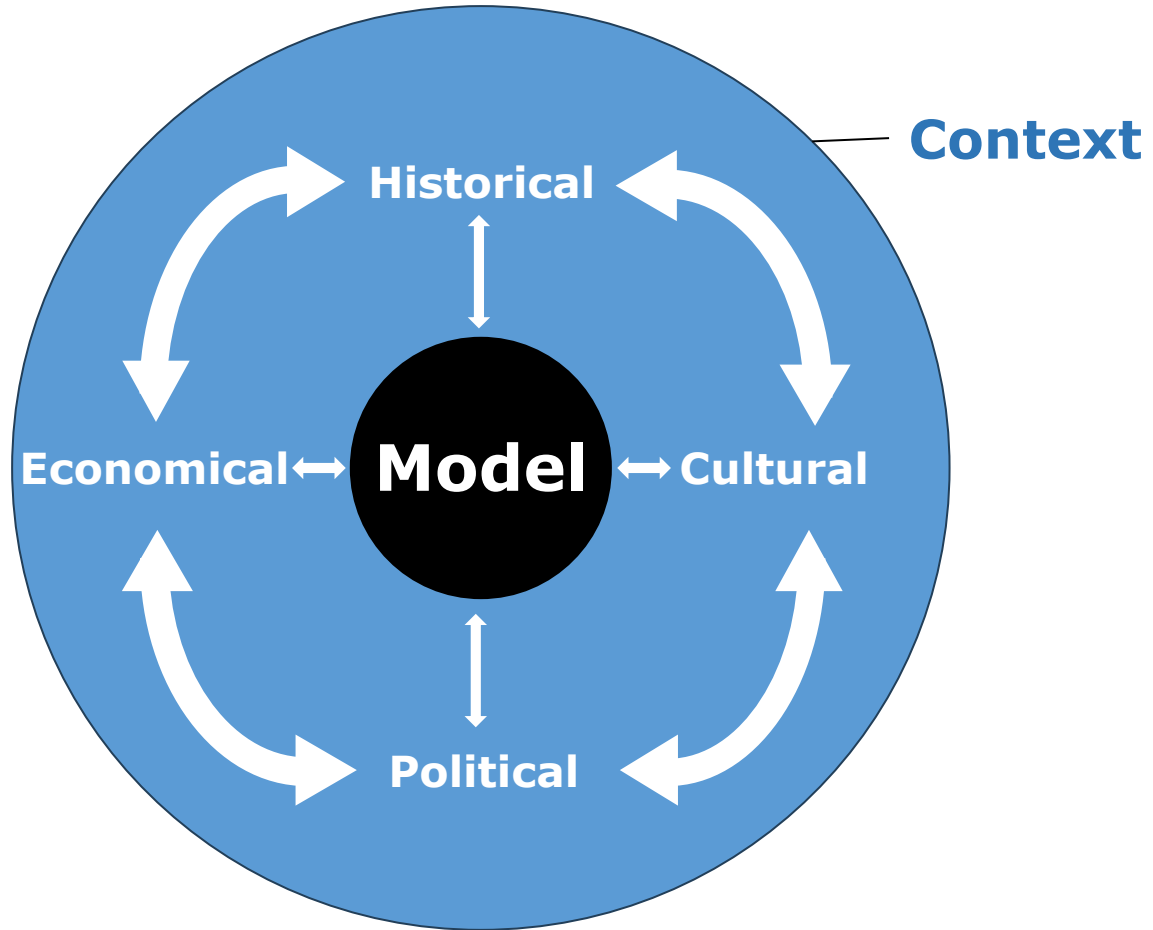
Osteopaths must act with honesty and integrity and uphold high standards of professional and personal conduct to ensure public trust and confidence in the profession.

[READ MORE >](#)

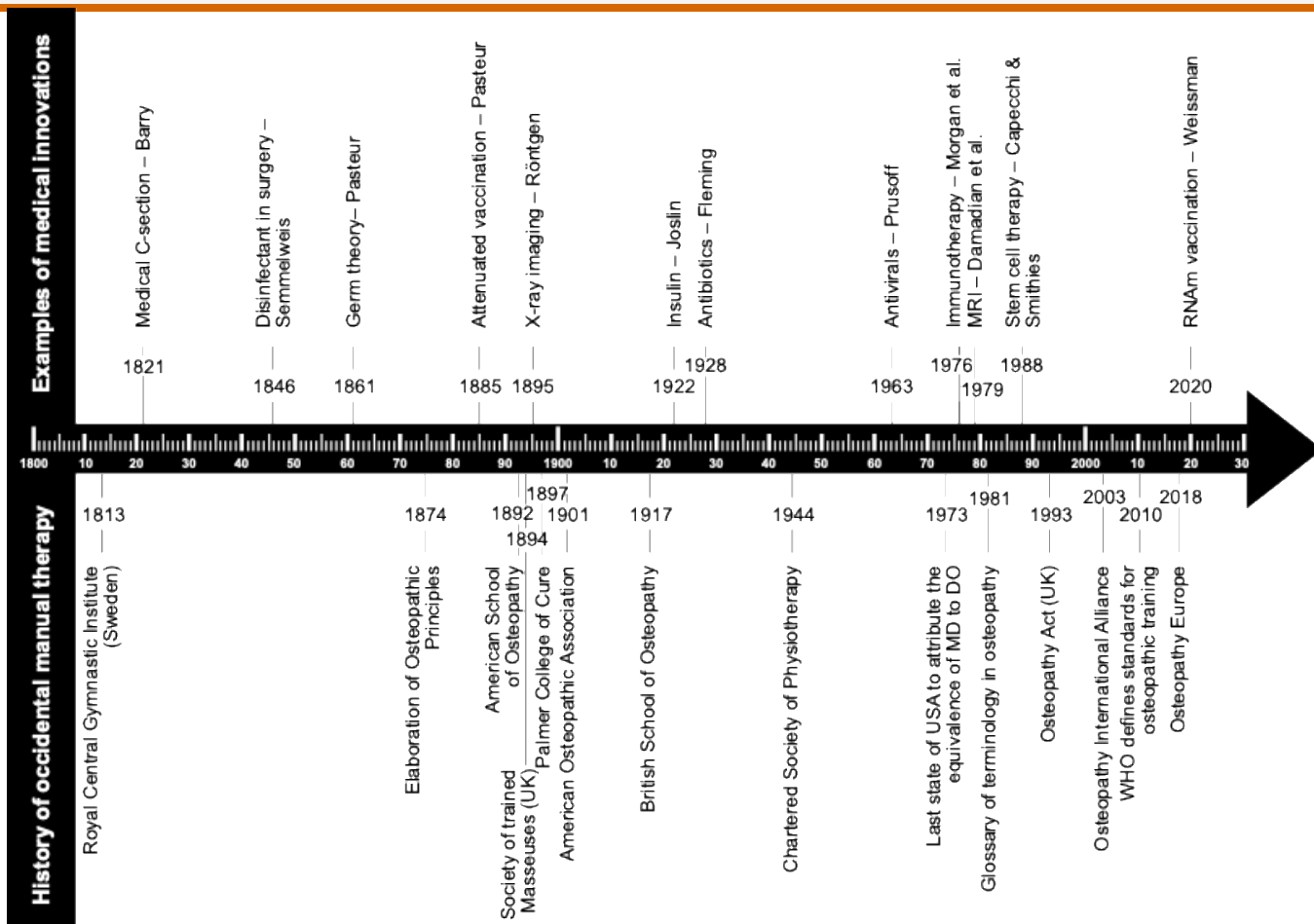
<https://standards.osteopathy.org.uk/>

Contextualising models

Historical-social-cultural context



Historical context



Modified from:
Salem & Vaucher, Mains Libres, 2024;3(24):147-149
DOI:10.55498/MAINSLIBRES.2024.12.3.147

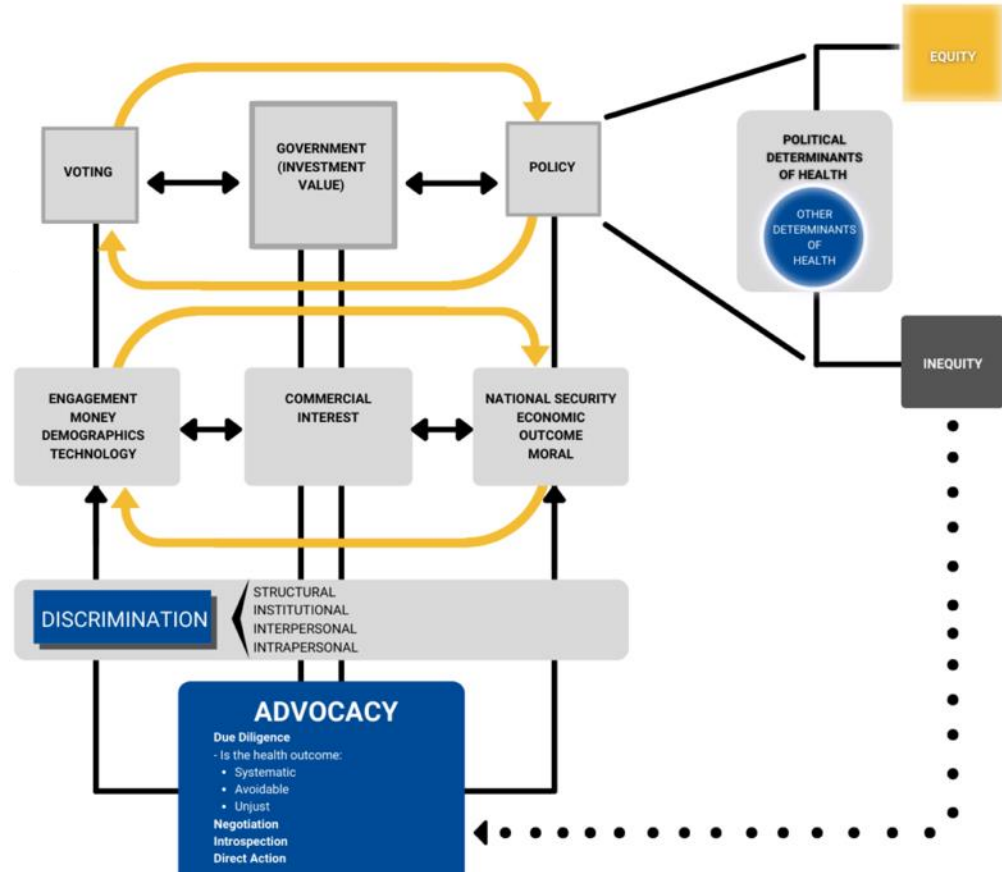
Cultural context



Rice & Liamputtong. (2021). Culture and Global Health. In: Kickbusch, I., Ganten, D., Moeti, M. (eds) Handbook of Global Health. Springer, Cham. DOI: doi.org/10.1007/978-3-030-45009-0_56

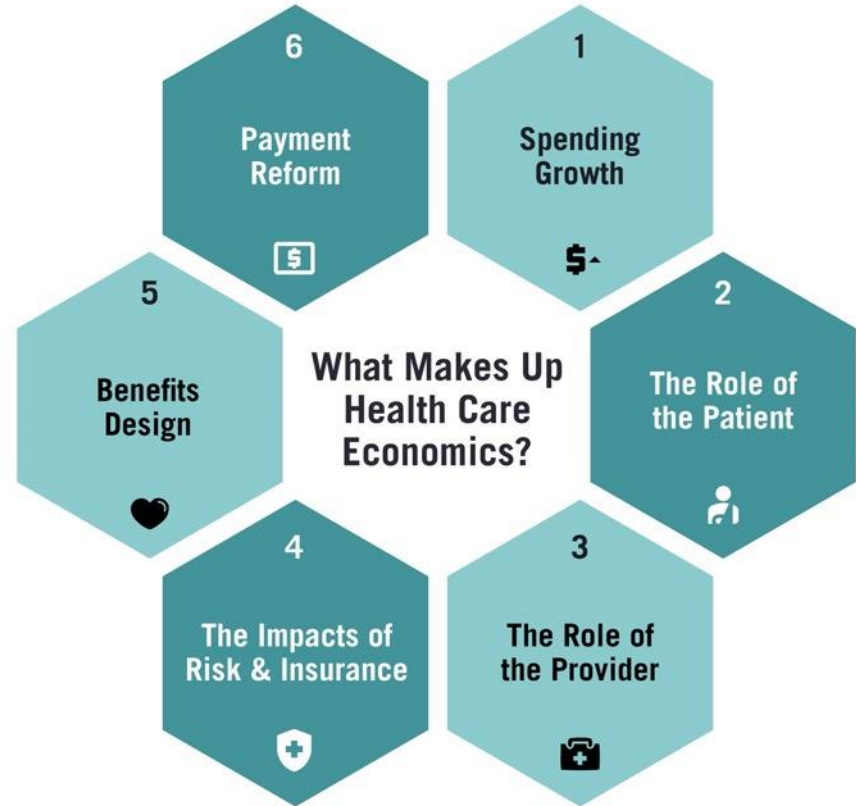
Political context

POLITICAL DETERMINANTS OF HEALTH MODEL



Dawes (2020), *The Political Determinants of Health*,
Johns Hopkins University Press

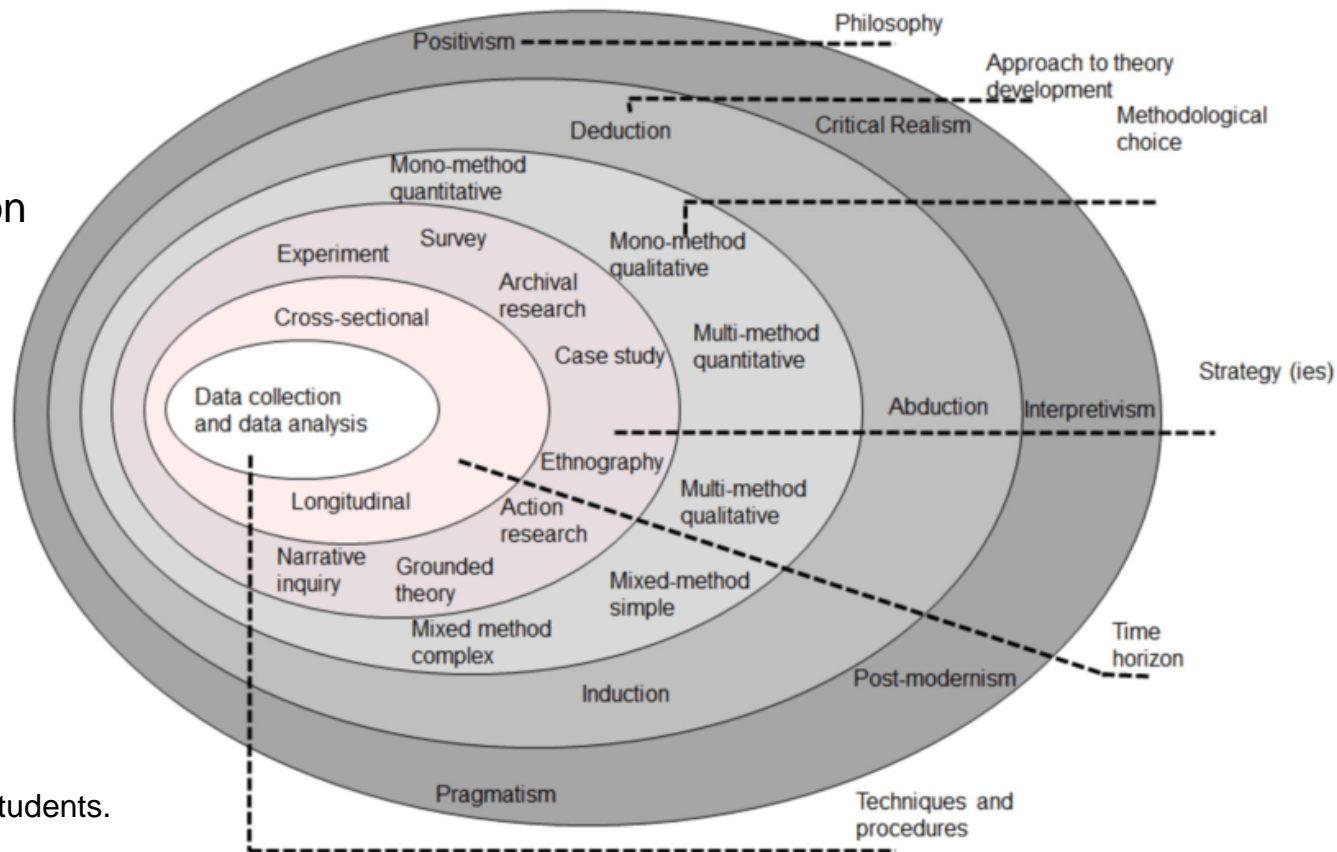
Economical context



Stobierski (2021), Harvard Business School
<https://online.hbs.edu/blog/post/what-is-healthcare-economics>

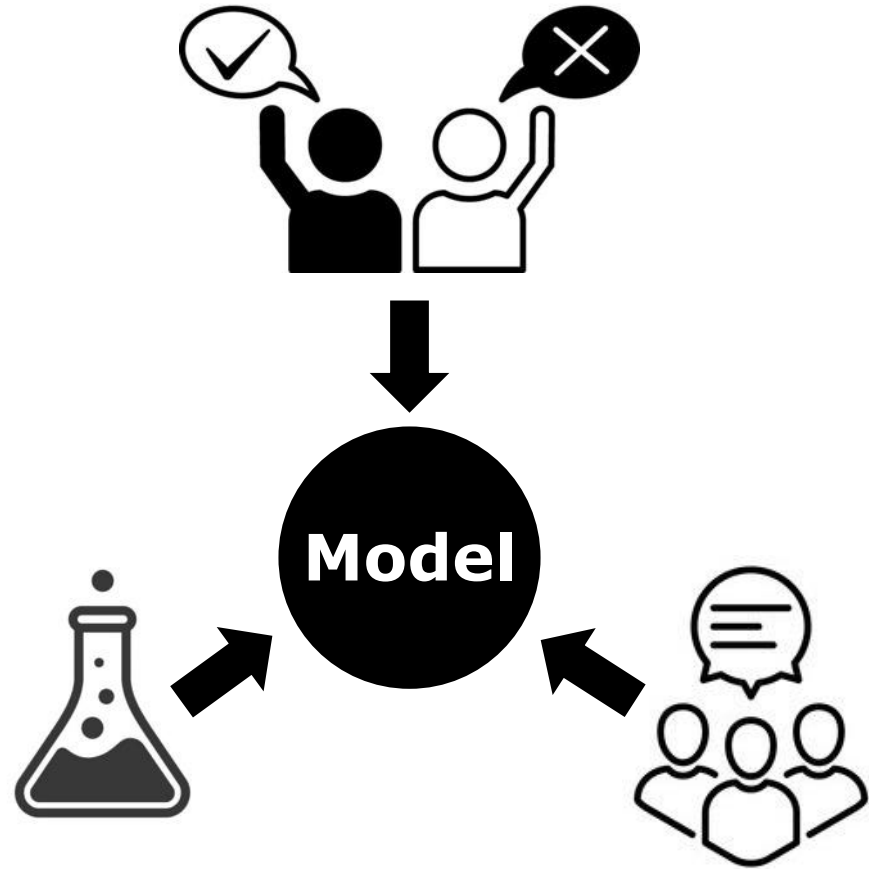
Philosophical standpoint

Saunders's Research Onion



Saunders, Lewis & Thornhill.
Research Methods for Business Students.
2009 (4): p.106-135.

Scientific paradigms,
existing controversies, and
interdisciplinary insights



Evaluating models

Quality of the model

Expectations	Description
Explanation	Provides a clear and coherent explanations of the underlying principles, mechanisms, or processes that govern the phenomenon of interest.
Predictability	Has predictive power, enabling the generation of hypotheses and accurate predictions about future observations or outcomes.
Consistency with Existing Knowledge	Is consistent with existing empirical evidence and theoretical frameworks within the relevant field of study.
Practical Utility	Provides valuable insights and guidance for practitioners, policymakers, or professionals within the relevant field.
Simplicity & Parsimony	Avoids unnecessary complexity while retaining the ability to explain and predict the phenomenon in a new and original way.
Falsifiability	Proposes hypotheses that can be tested and be potentially disproven through empirical research.
Generalisability	Can be applied across different contexts or populations within the specified scope.
Adaptability	Allows for modifications, refinements and improvements in response to new evidence, emerging theories, or changes in the phenomenon over time.

Value

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

Poor Fair Good Very good Excellent

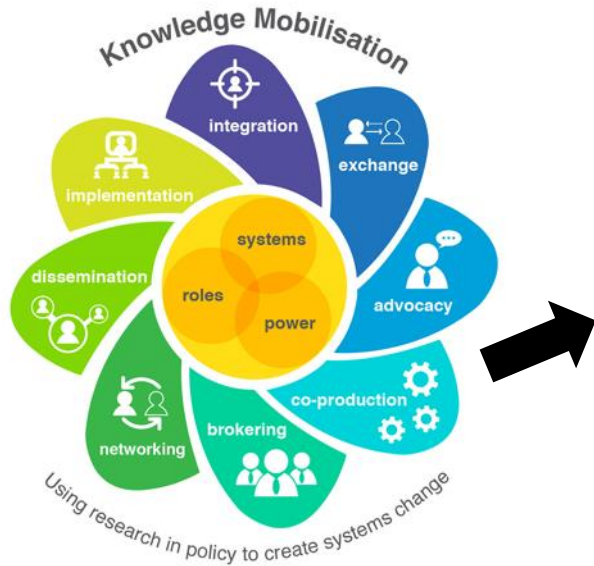
Poor Fair Good Very good Excellent

Level of evidence for the model

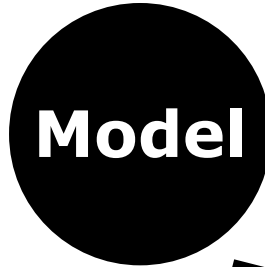
COME Collaboration Evidence Scale	
Grade	Type of model
A	Generalised theory
B	Explanatory theory
C	Model with empirical support
D	Model with expert consensus alone
E	Untested hypothetical model without broad consensus
F	Existing evidence against model

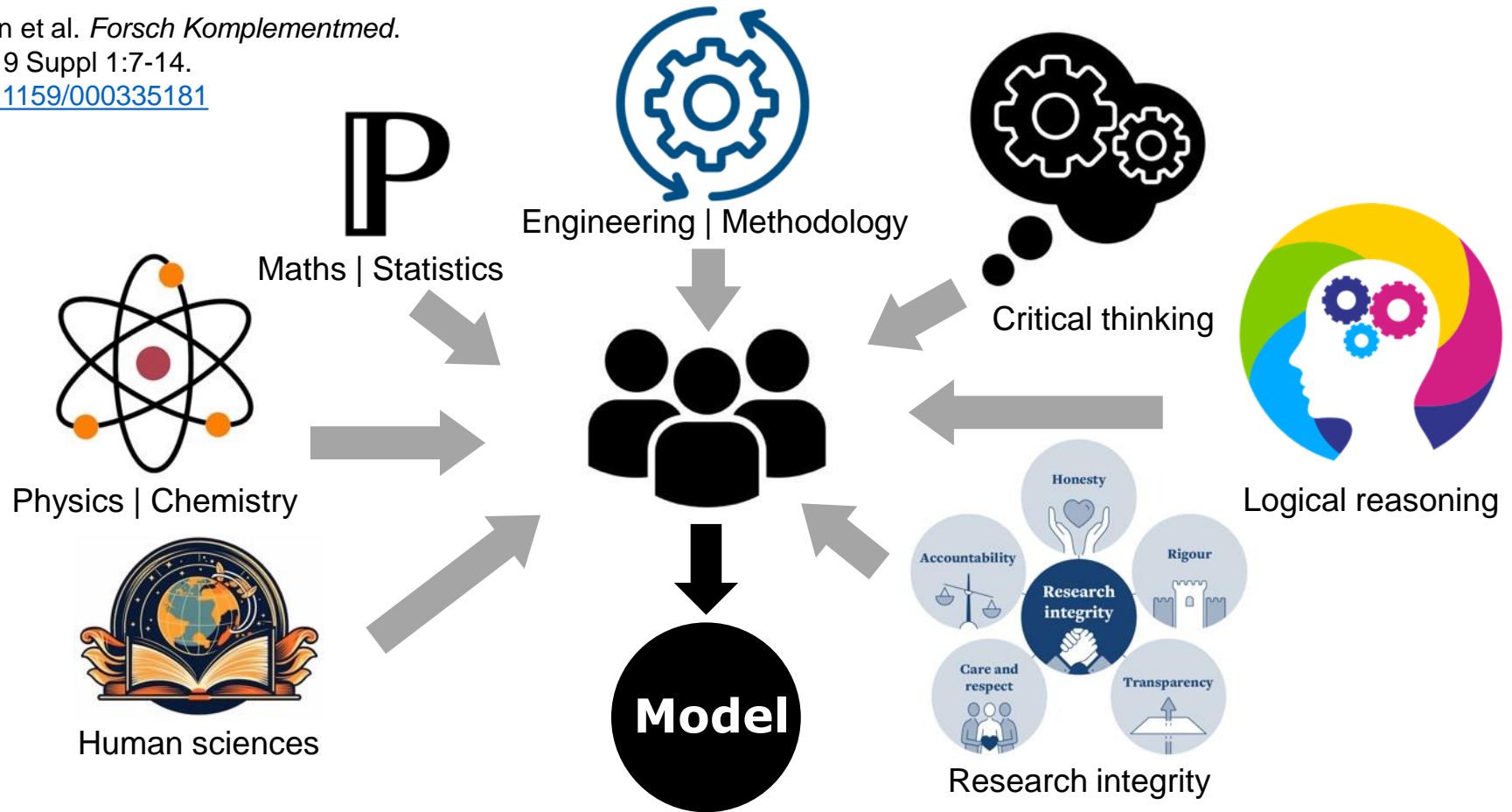
Esteves et al. *Int J Osteopathic Medicine*. 2020;35:1-4.
doi:[10.1016/j.ijosm.2020.01.003](https://doi.org/10.1016/j.ijosm.2020.01.003)

Implementing



<https://preventioncentre.org.au/resources/knowledge-mobilisation-framework/>





Embedding a research culture in allied health practice

Slade et al. *Health Res Policy Syst.* 2018;16(1):29.
doi:[10.1186/s12961-018-0304-2](https://doi.org/10.1186/s12961-018-0304-2)

Systems	Organisation	Individual
<ul style="list-style-type: none"> Overt research policies articulated and embedded Clear public health research plans Regulation, such as research policies by registration boards Professional associations advocate and support research System level governance around research – requirement for evidence informed policy Regulation or legislation around evidence-informed policy development Value placed on research Evidence-informed agenda setting Links to research institutions Dedicated investment in infrastructure and funding Strategy commission evidence syntheses for identification of priority Systems of accountability, government or regulatory review Policy makers involved in setting research agenda; researchers involved in policy formulation 	<ul style="list-style-type: none"> Research plan is documented and embedded Management and staff research literacy and research vision is documented and embedded Demonstrable leadership: research engagement, role modeling and support from “top down” Dedicated research positions Research sponsorship Research infrastructure such as facilities Research processes such as linked ethics committees Defined mission/vision Human Resources policies Provision of resources/training Mentors & champions Dissemination of research findings by e.g. multi-media Mechanism for translation & implementation of research into practice Formalized interaction between policy makers & researcher (meetings, workshops) 	<ul style="list-style-type: none"> Research skills and research capability can establish and sustain a research literate workforce Research evidence is available, accessible and useable to the individual Time allocation for research and skill acquisition Administrative, technical and information support including library, computers and software Measureable outcomes and professional development e.g. PhDs, external funding, conference attendance, publications Research networks, group activities and career pathways with access to supervision and mentoring Apply research findings to clinical practice Factors such as research skills and literacy, capability, motivation, self-confidence and perceptions of being valued

Take home message



Always room for improvement



Richness of plurality of models



Reflective approach of models

Thank you for your attention!

Dr.Sci Paul **Vaucher**

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