



**God eftermiddag Århus**



# Evidence Based Practice & Individualised Patient Care – with a twist of causation theory

Roger Kerry PhD



The University of  
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA



# Physiotherapy research a renaissance for evidence based practice?

Roger Kerry PhD



The University of  
**Nottingham**

UNITED KINGDOM • CHINA • MALAYSIA











A solid red horizontal bar spanning the width of the page.

## ANALYSIS

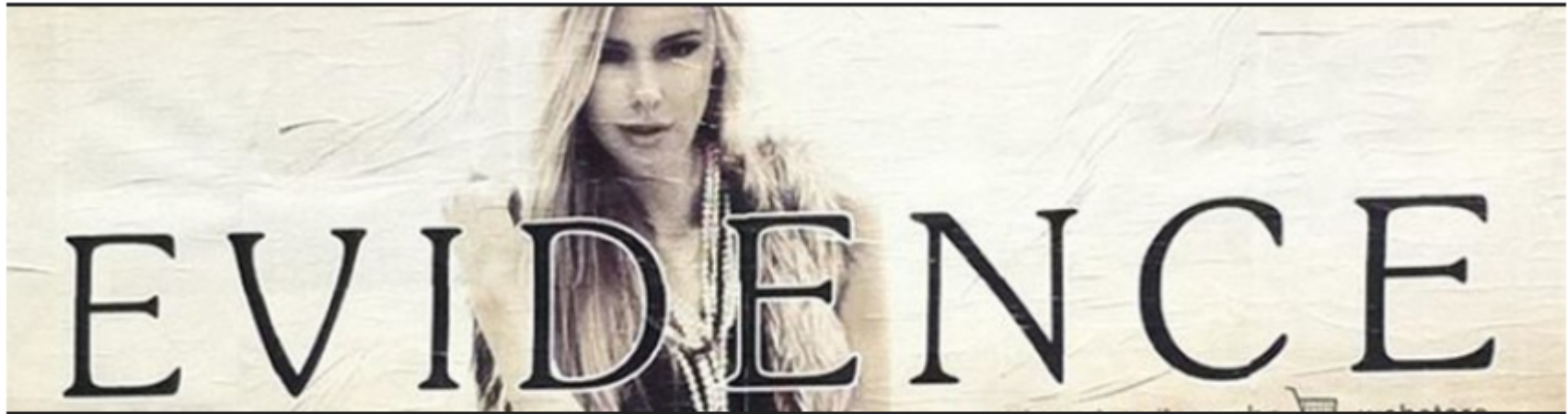
---

### ESSAY

## Evidence based medicine: a movement in crisis?

**Trisha Greenhalgh and colleagues** argue that, although evidence based medicine has had many benefits, it has also had some negative unintended consequences. They offer a preliminary agenda for the movement's renaissance, refocusing on providing useable evidence that can be combined with context and professional expertise so that individual patients get optimal treatment





[← I Don't Get Paid Enough To Think This Hard](#)

[“This house believes that in the absence of research evidence an intervention should not be used” →](#)

SEPTEMBER 29, 2014 · 4:56 PM | [EDIT](#)

[↓ Jump to Comments](#)

## Evidence-Based Physiotherapy: A Crisis in Movement

Follow me on Twitter

Tweets by [@RogerKerry1](#)



Roger Kerry  
[@RogerKerry1](#)



Blood pressure 176/94.

Not noted by the physiotherapist.

Why?

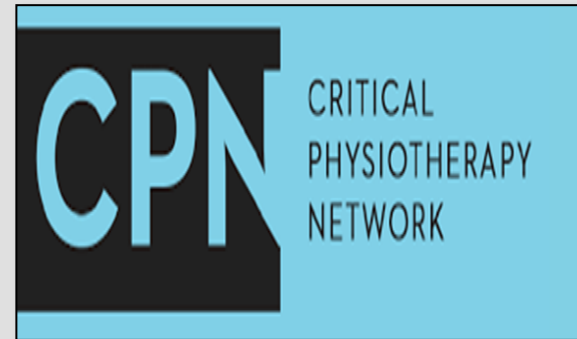
[#FOMPT2016](#) [#CAD](#)



Where are we?







### The Campaign for Real EBM







**Trisha Greenhalgh**

@trishgreenhalgh




Following

Thanks @Cause\_Health for this great T-shirt which arrived in the post for me today!







“If we **knew** what we  
were doing, it wouldn’t be  
called **research**”

Albert Einstein



# The empirical problem

*Open access, freely available online*

Essay

## Why Most Published Research Findings Are False

John P. A. Ioannidis

INSPIRED BY ASPIRE<sup>®</sup>

HOMILD

ASPETAR

## Systematic reviews cannot inform clinical practice. An example using a critical appraisal of a systematic review of shockwave therapy

Vasileios Korakakis<sup>1,2</sup>, Rodney Whiteley<sup>1</sup>, Alexander Tzavara<sup>2</sup>

<sup>1</sup> Orthopaedic and Sports Medicine Hospital, Doha, Qatar  
<sup>2</sup> Hellenic Orthopaedic Manipulative Therapy Diploma, Athens, Greece

Physiotherapists have been recommended to use systematic reviews (SRs) as a guide for evidence based clinical practice. There is growing evidence for the effectiveness of shockwave therapy (ESWT) (Figure 1) and increasing popularity in use as a treatment.<sup>3,4</sup>




Figure 2: Other type of Bias. 50% of published ESWT studies were conducted by one research group that reported favorable outcomes for ESWT in 100% of their studies

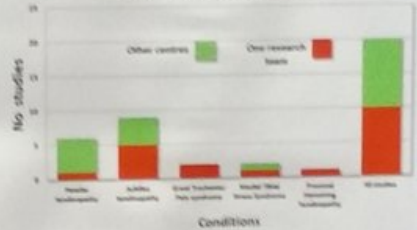


Figure 2: Other type of Bias. 50% of published ESWT studies were conducted by one research group that reported favorable outcomes for ESWT in 100% of their studies

Conclusions: The systematic review was unable to generalize findings to the clinical population due to insufficient homogeneity of sub-groups analysed. This was seen to be largely due to a lack of valid clinical tests capable of sub-grouping. Currently methods for the assessment of the quality of trials do not adequately document clinical homogeneity, validity and reliability of the clinical tests employed, or account for inappropriate clustering of different treatment modalities, and publication bias. Each of these shortcomings severely limit the generalizability of the findings of systematic reviews, and considered together render them bordering on clinically useless.

Implications: Clinicians should interpret with caution the results provided by systematic reviews, at least for the example of shock wave therapy in lower limb pathologies. We posit that these findings may generalize to other conditions and interventions commonly encountered clinically.

References:

1. Moher D, Tetzlaff J, Altman DG, Sampson M, Altman DG. Epidemiology and Reporting Characteristics of Systematic Reviews. *PLoS Medicine* 2007; 4(10):e174.
2. Mani-Babo S, Morsany O, Wray C, Scully H, Barton C. The Effectiveness of Extracorporeal Shock Wave Therapy in Lower Limb Tendinopathy: A Systematic Review. *The American Journal of Sports Medicine* 2015; 43(8):752-761.
3. Whipple J, Spacknall GM, Staronoff MN, Stewart DC, Doherty CN. Treatment for insertional Achilles tendinopathy: a systematic review. *Knee Surg Sports Traumatol Arthrosc* 2012; 22(10):1345-1355.
4. Speed C. A systematic review of shockwave therapies in soft tissue conditions. *Focus on the evidence. British Journal of Sports Medicine* 2014; 48(31):1538-1542.
5. Korakakis V, Whiteley R. The Effectiveness of ESWT in Lower Limb Tendinopathy: Center to the Center. *Am J Sports Med* 2015; 43(10):2413-24.





# The empirical problem

Journal of **Evaluation in Clinical Practice**

International Journal of Public Health Policy and Health Services Research



Journal of Evaluation in Clinical Practice ISSN 1365-2753

## **Analysis of scientific truth status in controlled rehabilitation trials**

Roger Kerry FMACP, MCSP, MSc,<sup>1</sup> Aurélien Madouasse DVM, PhD,<sup>2\*</sup> Antony Arthur PhD<sup>3</sup> and Stephen D. Mumford PhD<sup>4</sup>

[Online First >](#)

Original Investigation | August 29, 2016

## Effect of Care Guided by Cardiovascular Magnetic Resonance, Myocardial Perfusion Scintigraphy, or NICE Guidelines on Subsequent Unnecessary Angiography Rates

The CE-MARC 2 Randomized Clinical Trial **FREE** **ONLINE FIRST**

John P. Greenwood, PhD<sup>1</sup>; David P. Ripley, MBChB<sup>1</sup>; Colin Berry, PhD<sup>2</sup>; Gerry P. McCann, PhD<sup>3,4</sup>; Sven Plein, PhD<sup>1</sup>; Chiara Bucciarelli-Ducci, PhD<sup>5</sup>; Erica Dall'Armellina, PhD<sup>6</sup>; Abhiram Prasad, MD<sup>7</sup>; Petra Bijsterveld, MA<sup>1</sup>; James R. Foley, MBChB<sup>1</sup>; Kenneth Mangion, MD<sup>2</sup>; Mark Sculpher, PhD<sup>8</sup>; Simon Walker, MSc<sup>8</sup>; Colin C. Everett, MSc<sup>9</sup>; David A. Cairns, PhD<sup>9</sup>; Linda D. Sharples, PhD<sup>9</sup>; Julia M. Brown, MSc<sup>9</sup>; for the CE-MARC 2 Investigators

[\[+\] Author Affiliations](#)

JAMA. Published online August 29, 2016. doi:10.1001/jama.2016.12680

Text Size: **A** **A** **A**





# The philosophical problem







# CAUSEHEALTH



The University of  
**Nottingham**

UNITED KINGDOM · CHINA · MALAYSIA



Norges miljø- og  
biovitenskapelige  
universitet

# CAUSE HEALTH



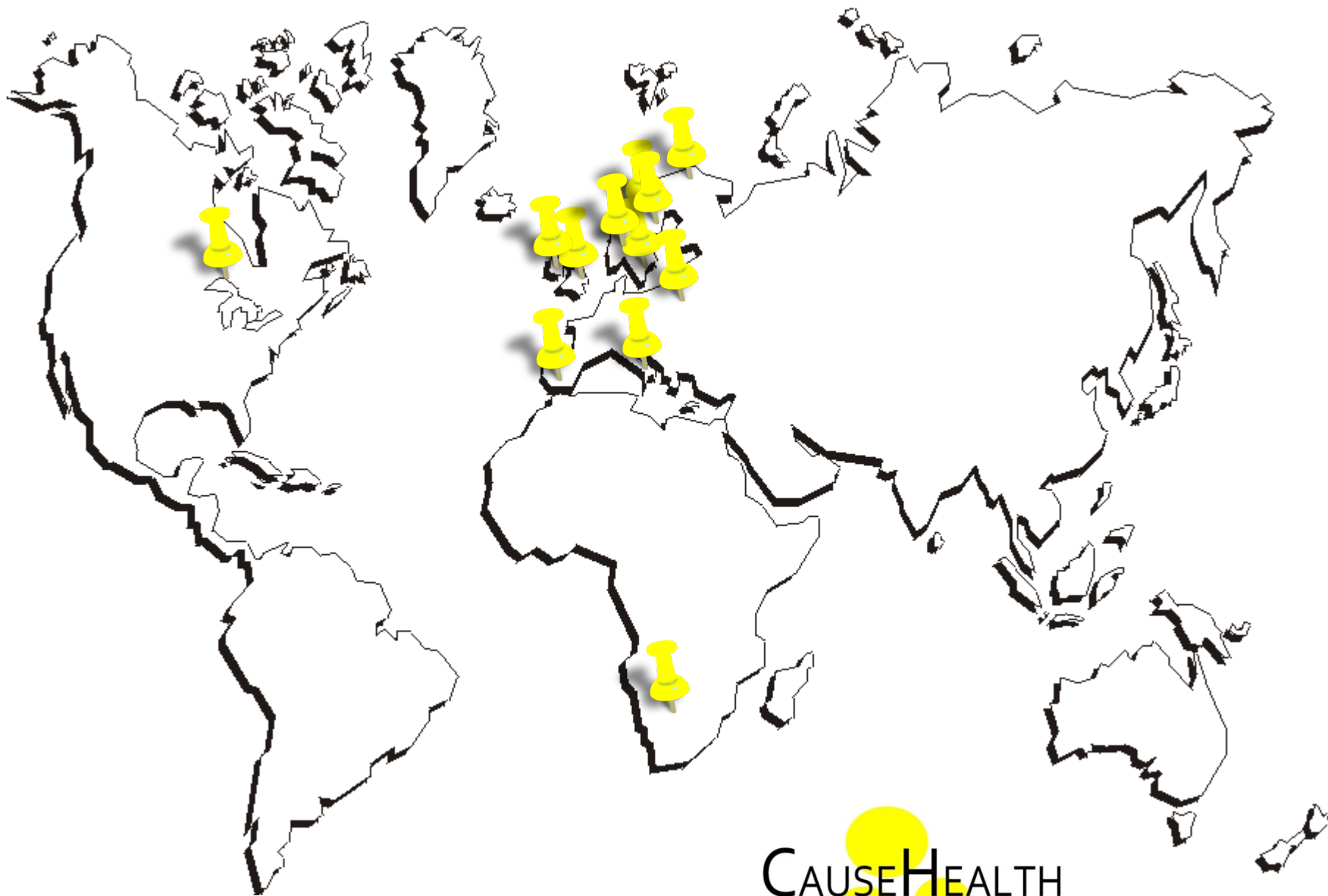
The University of  
**Nottingham**

UNITED KINGDOM · CHINA · MALAYSIA



Norges miljø- og  
biovitenskapelige  
universitet





CAUSEHEALTH



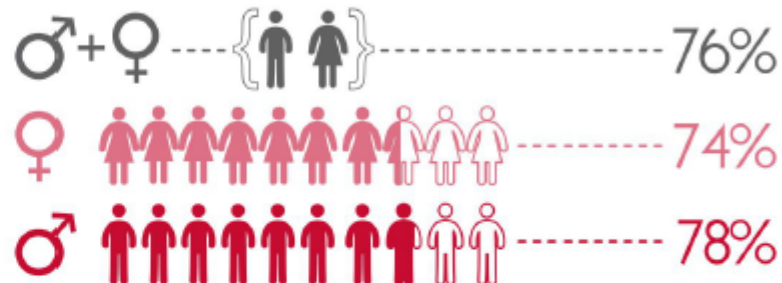
# Denmark Denmark Denmark Denmark Denmark Denmark Denmark Denmark Denmark Denmark

## Physical Activity Country Card: Denmark

Capital ..... Copenhagen  
 Inhabitants (2013) ..... 5,613,706  
 Life expectancy (2012) ..... 80  
 GINI inequality index (2011) ..... 0.25  
 Human Development Index (2013) ..... 0.900  
 Literacy rate (2003) ..... 99%  
 Deaths by non-communicable diseases ..... 90%



## Prevalence of Physical Activity | Age 18+ years



## Deaths related to physical inactivity

» 9.4% of all deaths in Denmark are due to inactivity.



## Research metrics (PubMed search in 2013)

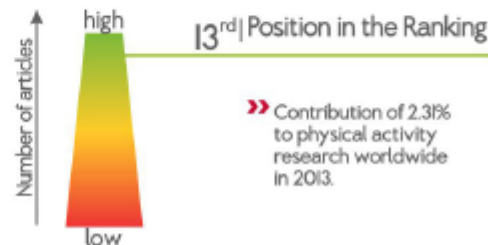


### Contact information

Name: Lars B. Christiansen  
 Institution: University of Southern Denmark, Institute of Sports Science and Clinical Biomechanics, Odense, Denmark

## Surveillance and policy status

- Physical activity plan**  
 Yes  No  
 » Name: Healthier life for all.
- National survey**  
 Yes  No  
 First survey: 2010  
 Most recent survey: 2013  
 Next survey: 2017



For description of the indicators and data sources:  
[www.globalphysicalactivityobservatory.com/appendix](http://www.globalphysicalactivityobservatory.com/appendix)

Icons by freepik





# #MovementForMovement

## A global movement for movement

Moving professionals. Moving nations. Moving lives.

Open to everyone, a community of practice:

- 👂 learning together
- 👥 brought to life by working together
- 👏 held together through passion and the value of collective experiences

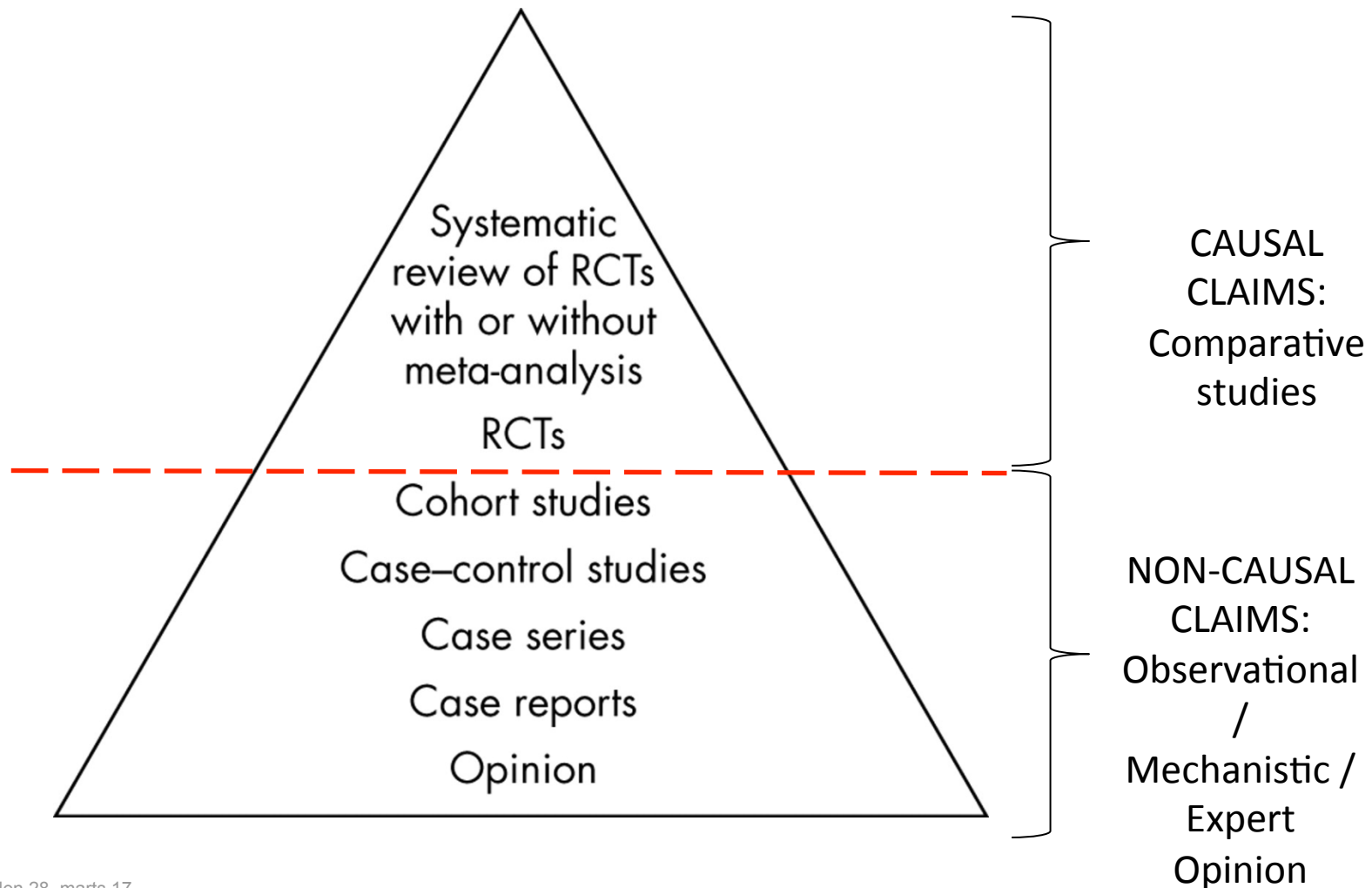


“Evidence from study designs  
**higher up** the hierarchy **more**  
**reliably** informs **therapeutic**  
**decisions**” (La Caze, 2008):361





# Hierarchies expose causal theory



**“One small thing followed by another”**

David Hume (1739)


**Contiguity**

**Temporal priority**

**Constant conjunction**

**~~Necessary connexion~~**

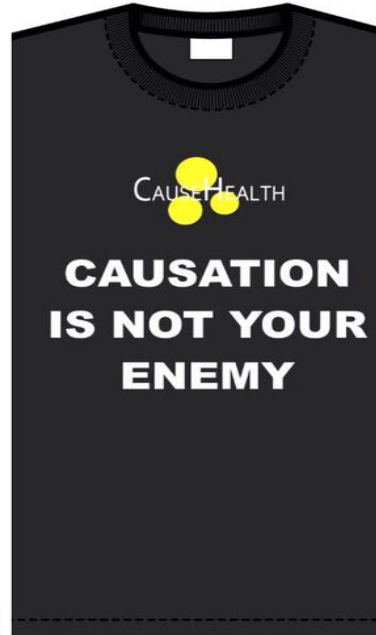




There's a distinction between  
data and Hardware, right?








241/2009



# EVIDENCE

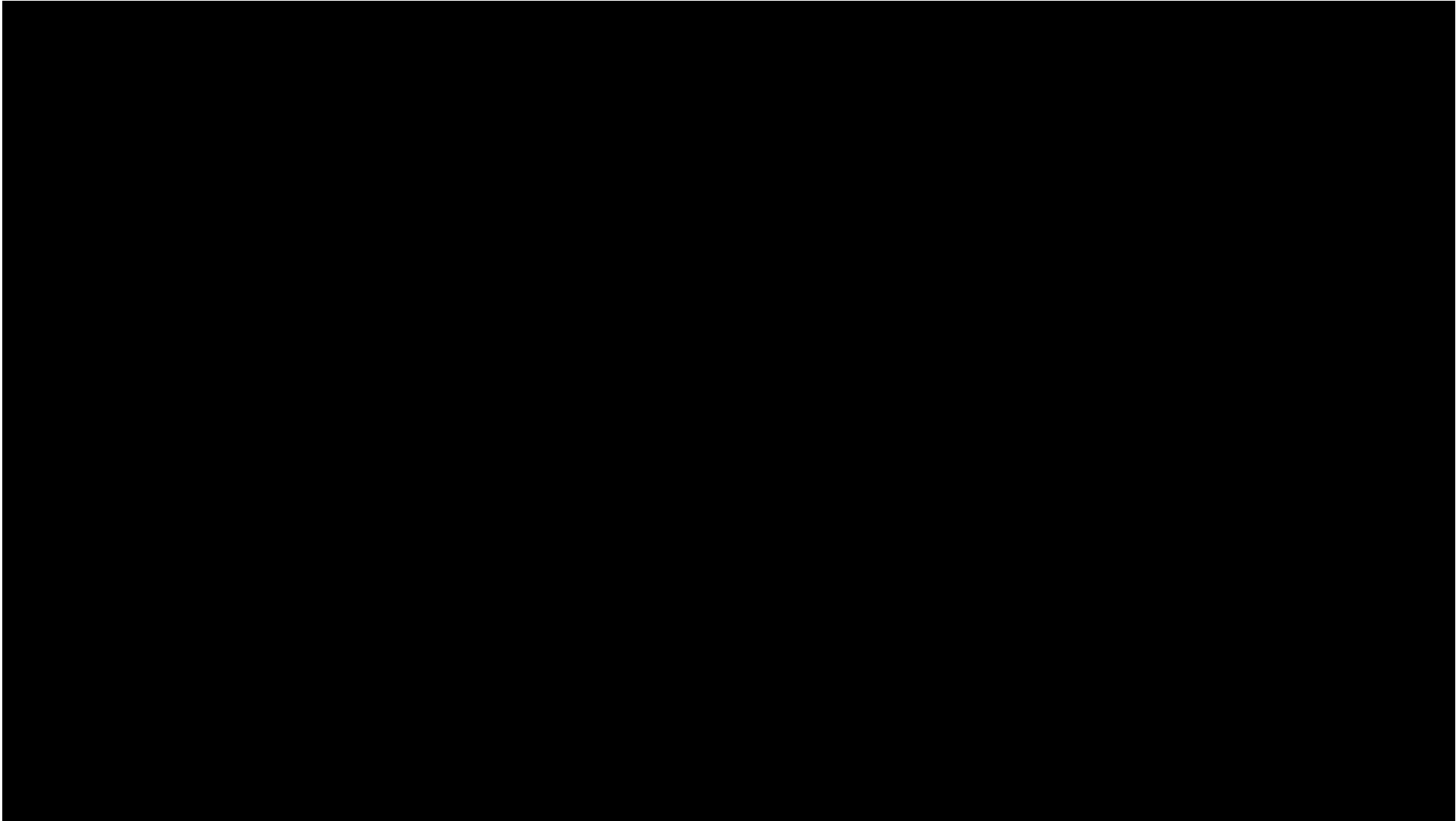
fall / winter 2011

[www.evidencebrazil.com.br](http://www.evidencebrazil.com.br)  webstore

**Rua Chapot Presvot, 364 - Praia**









**“Bad metaphysics  
costs lives”**

**Mumford, 2015**





# Causal Dispositionalism

“The **cause** is then about the **process** that is productive; the **effect** is about the **process** that is produced”

Mumford & Anjum 2011



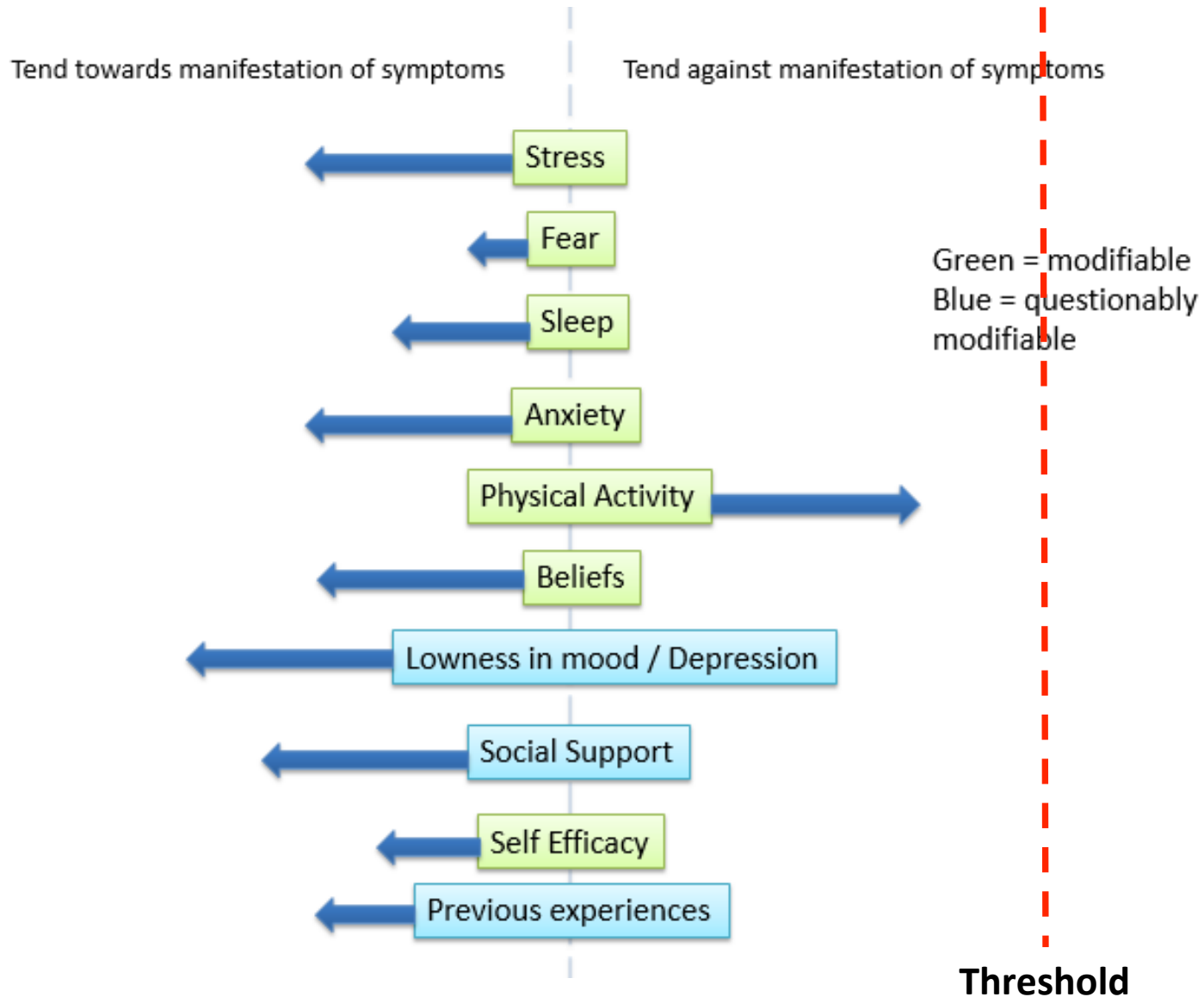
**ORIGINAL ARTICLE**

# A novel clinical framework: The use of dispositions in clinical practice. A person centred approach

Matthew Low MSc, BSc, MMACP, MSCP



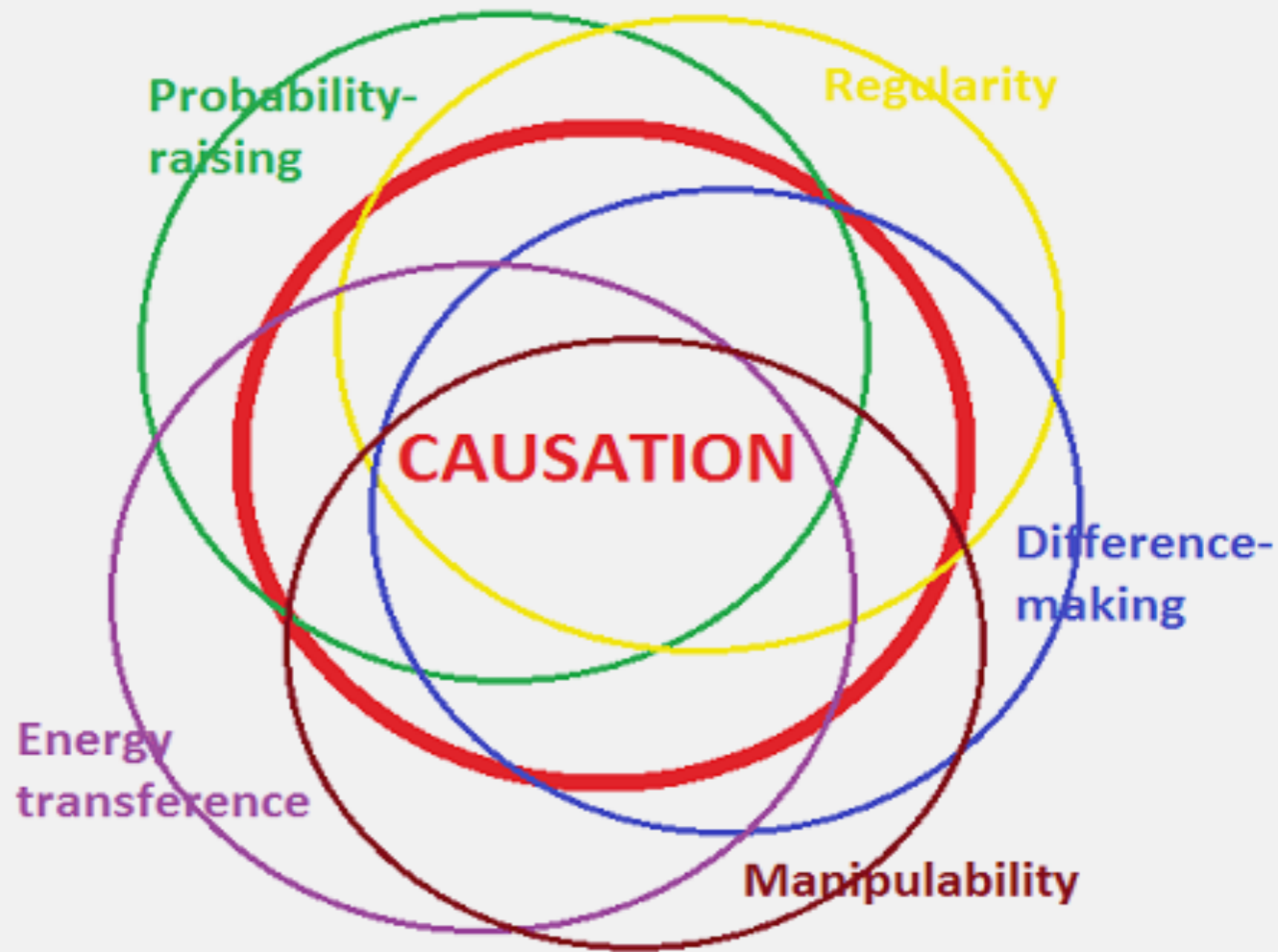
# Dispositional Vector Model





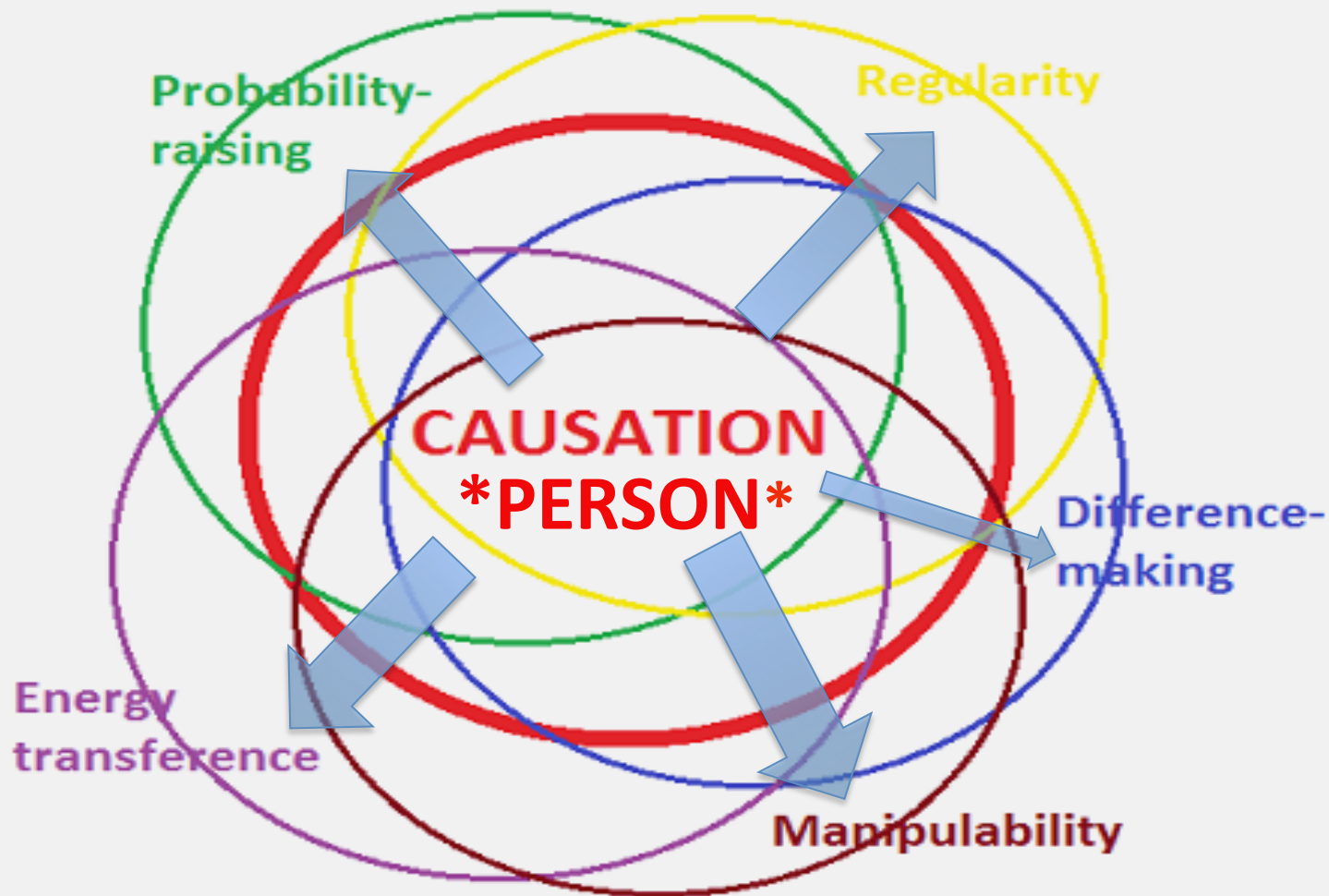
## #RealEBM: defining features

- Makes the **ethical care of the patient** its top priority
- Demands **individualised evidence** in a format that clinicians and patients can understand
- Is characterised by **expert judgment** rather than mechanical rule following
- Shares decisions with patients through **meaningful conversations**
- Applies these principles at **community level** for evidence based public health



# Evidential Pluralism





## Evidential Pluralism in EBM

### BRAIN CHECK-UP



Specific brain lobes and neurotransmitters:

- DOPAMINE** - frontal lobes (Energy or Metabolism): Normal
- ACETYLCHOLINE** - parietal lobes (Memory): Low
- GABA** - temporal lobes (Calm): Normal
- SEROTONIN** - occipital lobes (Mood): Normal

# HEALTH CARE

### PATIENT PROFILE

### PROGRAM DETAILS

### NOTES

### DOWNLOAD



Measures to prevent cardiovascular disease include:

1. A low-fat, high-fiber diet
2. Tobacco cessation
3. Limit alcohol consumption
4. Decrease body fat (BMI)
5. Decrease psychosocial stress
6. Increase daily activity
7. Reduce sugar consumption



### PATIENT PROFILE

### PROGRAM DETAILS

### NOTES













Contextualise population data

Reconceptualise fundamental ideas

Embrace our complexity, don't control for it

Work across disciplines, especially the humanities

Place people, not patients, at the heart of our research

What is our research **vision?**









# Mange Tak

Image: Aarhus, Jan Jespersen