EAHP Academy Seminars

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Brussels

#ACASEM2019

Introduction to service evaluation and qualitative research

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Conflicts of interest

- No conflicts of interest to declare

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Introduction

- Understanding how humans make decisions and its impact on:
  - Communicating findings
  - Conducting research
- Answering questions using qualitative and quantitative studies

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Introduction

- Understanding how humans make decisions and its impact on:
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What do we know about how people make decisions?

- Behavioural economics and cognitive psychology:
  - Bounded rationality (Herbert Simon 1978)
  - Dual process theory (Daniel Kahneman 2002)
  - Most decisions are informed by brief reading and talking to other people

- please find a piece of paper and a pen

- a list of words follows

look at them once, do not re-read them

- when you have read the list close your eyes

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Flange
Routemaster
Laggard
Sausages
Automaton
Approach
Antichrist
Research
Slipper
Haggle
Fridge
Locomotive
Bracket
Confused
Telesales
Professor
Stool pigeon
Hale
Banquet
Irrelevance

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Write down as many words as you can remember

How many words that you remembered are in each group?

A

Flange
Routemaster
Laggard
Sausages

B

Automaton
Approach
Antichrist
Research

C

Slipper
Haggle
Fridge
Locomotive

D

Bracket
Confused
Telesales
Professor

E

Stool pigeon
Hale
Banquet
Irrelevance

Herbert Simon
1978
Economics

Bounded rationality
Satisfycing

Please list all the medicines which have a potential interaction with warfarin – both increasing and decreasing its effect

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Drug interactions with warfarin – decreased effect

- Amobarbital
  Butabarbital
  Carbamazepine
  Cholestyramine
  Dicloxacillin
  Griseofulvin
  Mercaptopurine
  Mesalamine
  Nafcillin
  Phenobarbital
  Phenytoin
- Primidone
  Ribavirin
  Rifabutin
  Rifampin
  Secobarbital
  Sucralfate
  Vitamin K
  Coenzyme Q10
  Ginseng
  St. John's wort
  Green tea

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Drug interactions with warfarin – increased effect

- Acetaminophen
  Alcohol (binge)
  Allopurinol
  Amiodarone
  Argatroban
  Aspirin
  Azithromycin
  Bactrim
  Chloral hydrate
  Chloramphenicol
  Cimetidine
  Ciprofloxacin
  Citalopram
- **Clarithromycin**
  Clofibrate
  Danazol
  Diltiazem
  Disopyramide
  Disulfiram
  Doxycycline
  Entacapone
  Erythromycin
  Felbamate
  Fenofibrate
  Fluconazole
  Fluorouracil

Drug interactions with warfarin – increased effect

- Gemfibrozil
  Influenza vaccine
  Isoniazid
  Itraconazole
  Levofloxacin
  Metronidazole
  Miconazole
  Moxalactam
  Neomycin
  Norfloxacin
  Ofloxacin
  Omeprazole
  Phenylbutazone

- Piroxicam
  Propafenone
  Propranolol
  Quinidine
  Ritonavir
  Sertraline
  Simvastatin
  Sulfamethoxazole
  Sulfinpyrazone
  Tamoxifen
  Testosterone
  Tetracycline
  Vitamin E

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Drug interactions with warfarin – increased effect

- Voriconazole
  Zafirlukast
  Anise
  Asafoetida
  Chamomile
  Clove
  Danshen
  Devil's claw
  Dong quai
  Fenugreek
  Feverfew
  Fish oil
  Garlic
  Ginger

- **Ginkgo**
  Grapefruit
  Horse chestnut
  Licorice root
  Mango
  Meadowsweet
  Onion
  Papain
  Quassia
  Red clover
  Rue
  Sweet clover
  Tumeric
  Willow bark

Making an important life decision

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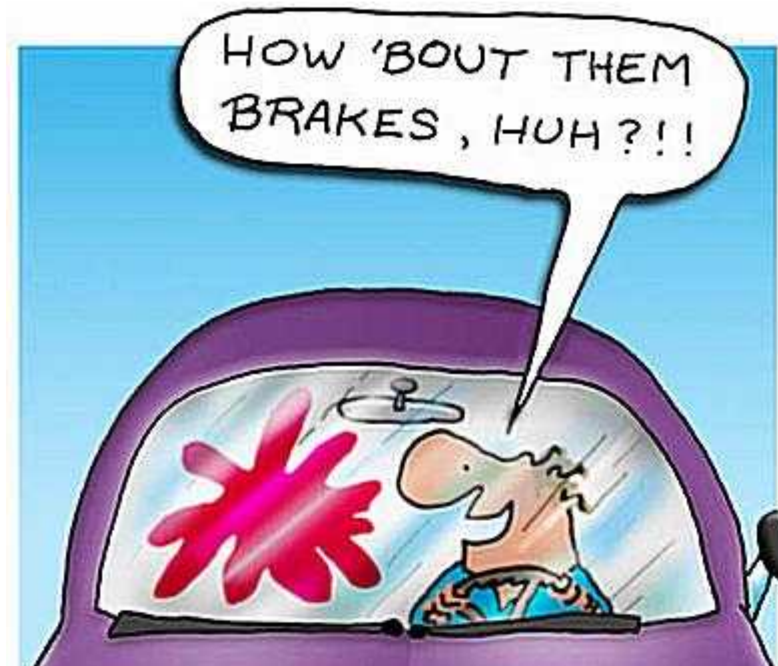

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Humans make decisions by……

Small number of variables

+

HOW?

Allocate value to those variables

+

Time frame

=

DECISION

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Allocating value to those variables

- Brief reading
- Talking to other people

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Automobile

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October 12-15, 2008
Grand Hyatt, San Antonio, Texas, USA

More Events

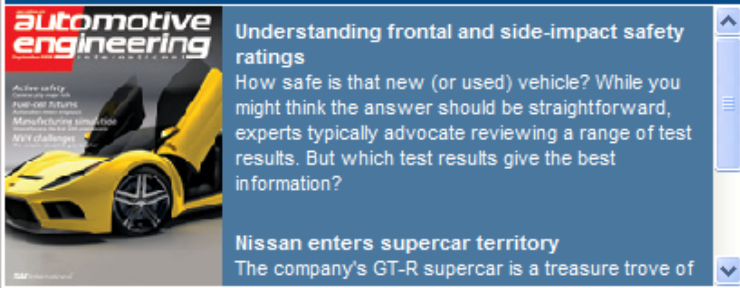
Education and Training

Fundamentals of Steering Systems Seminar
October 27-28, 2008

More Education and Training

Convergence® 2008

October 20-22, 2008
Detroit, Michigan, USA



Understanding frontal and side-impact safety ratings
How safe is that new (or used) vehicle? While you might think the answer should be straightforward, experts typically advocate reviewing a range of test results. But which test results give the best information?

Nissan enters supercar territory
The company's GT-R supercar is a treasure trove of

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Engine Testing: Theory & Practice, Third Edition brings together the large and scattered body of information on the theory and practice of engine testing, to which any engineer responsible for work of this kind must have access.

2008 Update: Surface Vehicle Electromagnetic Compatibility (EMC) Standards Manual
This collection is the single source of the most recent SAE EMC documents, also contains 3 revised standards.

Laminated Glass: Design Considerations for Vehicle Door Systems Fast Track - 40 minute presentation provides an overview of best practices for integration of the product into vehicle door systems based upon extensive testing and field experience.

Available on-line! Fundamentals of

How is knowledge managed in primary care?

Gabbay and le May BMJ 2004; 329: 1013 – 6.

- Not once was a guideline read
- Expert computer systems rarely used (never in real time)
- Shortcuts to evidence
  - free magazines
  - network of trusted colleagues (rarely if ever questioned)
  - Pharma reps – considerable scepticism (but not without influence)
  - Pharmaceutical adviser – highly trusted source.

"Clinicians rarely accessed, appraised, and used explicit evidence directly from research or other formal sources; rare exceptions were where they might consult such sources after dealing with a case that had particularly challenged them."

"Instead, they relied on what we have called "mindlines," collectively reinforced, internalised tacit guidelines, which were informed by brief reading, but mainly by their interactions with each other and with opinion leaders, patients, and pharmaceutical representatives and by other sources of largely tacit knowledge that built on their early training and their own and their colleagues' experience."

Daniel Kahneman
Economics
2002

Dual Process theory

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Shout out the answer to these questions quickly

Who is this?

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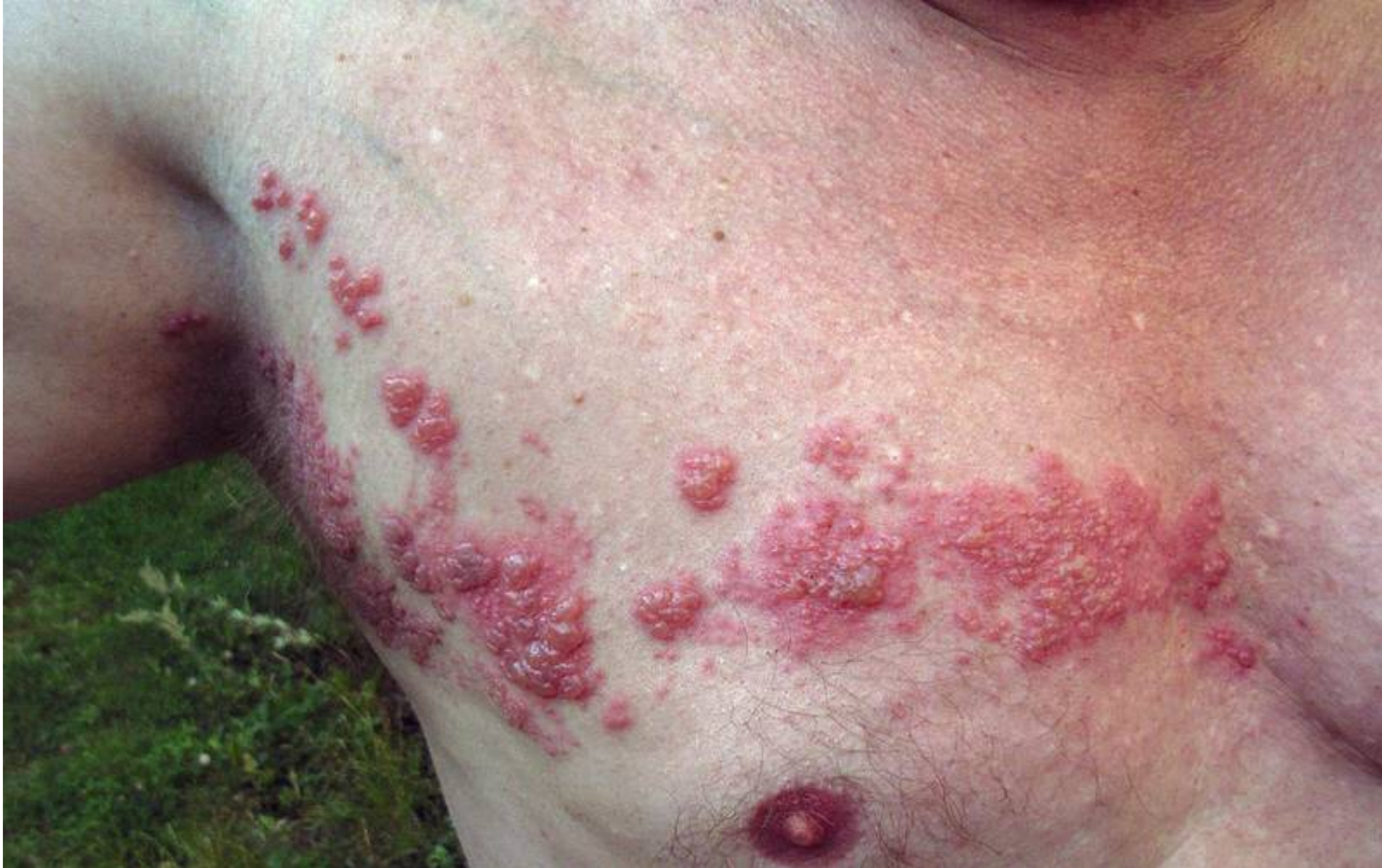
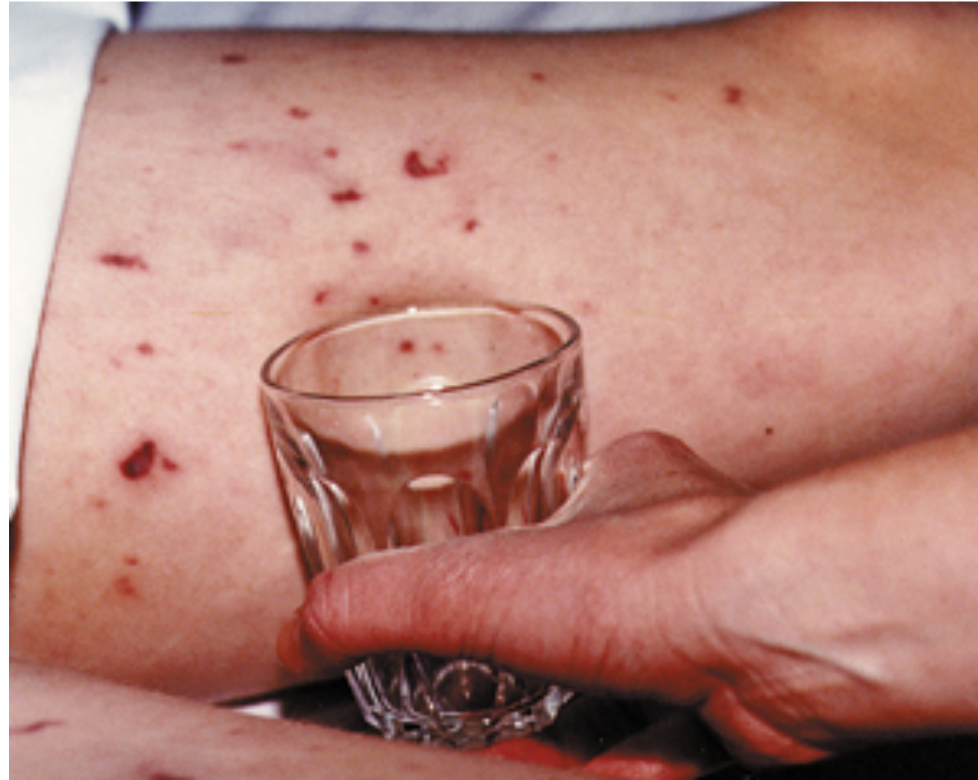
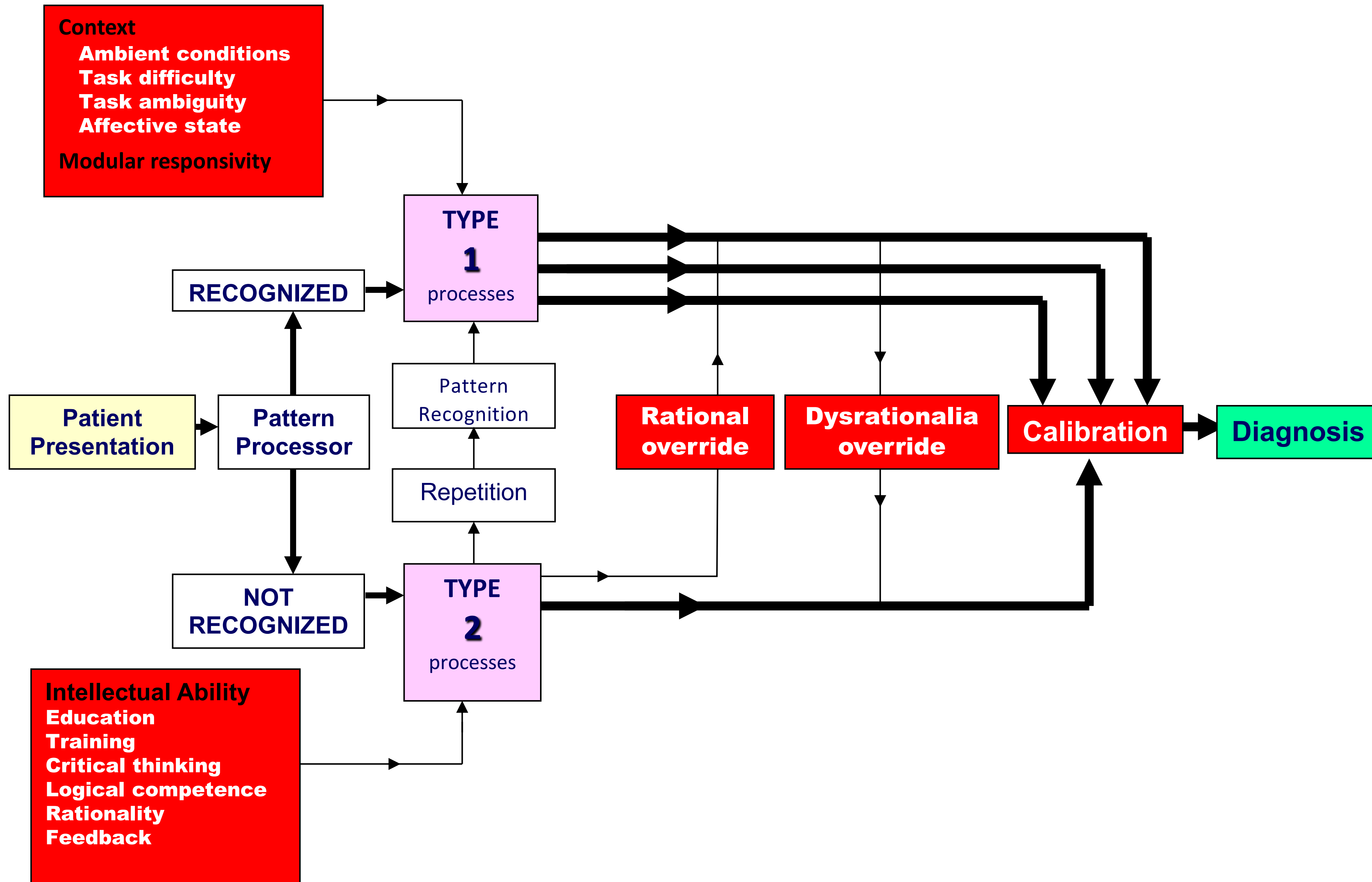
What is the diagnosis?



What treatment would you use here?





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Who knows the story of Noah in the Bible?

Imagine you are working as a doctor in a remote village. It’s the weekend. There are no other health care professionals around. But you do have a new piece of technology called THE MARVELTRON.

- The MARVELTRON will save the life of any patient you are treating
- But you have to answer correctly the question the MARVELTRON asks of the attending doctor before it works its magic.

- A young child is brought to you. She is seriously ill and will die imminently
- You switch on the MARVELTRON and await the question
- You must write down your answer immediately the question is asked, or the child will die
- You will be blamed for the patient’s death only if you do not write down an answer. No blame will be attached to you if you get the answer wrong
- ARE YOU READY?
- Have you got paper and something to write with?

- According to the Bible, how many sheep did Noah take into the Ark?

- Answer quickly
- Write it down
- The child is dying.

End of answer period

How many sheep?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- More than 7

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The correct answer

Genesis ch 7

- **v1** And the LORD said unto Noah, Come thou and all thy house into the ark; for thee have I seen righteous before me in this generation.
- **v2** Of every clean beast thou shalt take to thee by sevens, the male and his female: and of beasts that are not clean by two, the male and his female.
- **v3** Of fowls also of the air by sevens, the male and the female; to keep seed alive upon the face of all the earth.

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How we acquire and use information

- Where did you get the information from to make that decision about Noah and the sheep?
- If you had had time, what would you have done to make sure you had the right answer?

Genesis 7	
New International Version (NIV) Listen to this passage **Genesis 7** and your whole family, because I have found you righteous in this generation. ² Take with you seven [a] of every kind of clean animal, a male and its mate, and two of every kind of unclean animal, a male and its mate, ³ and also seven of every kind of bird, male and female, to keep their various kinds alive throughout the earth. ⁴ Seven days from now I will send rain on the earth for forty days and forty nights, and I will wipe from the face of the earth every living creature I have made." ⁵ And Noah did all that the LORD commanded him.	**King James Version (KJV)** Listen to this passage View commentary related to this passage **Genesis 7** ¹And the LORD said unto Noah, Come thou and all thy house into the ark; for thee have I seen righteous before me in this generation. ²Of every clean beast thou shalt take to thee by sevens, the male and his female: and of beasts that are not clean by two, the male and his female. ³Of fowls also of the air by sevens, the male and the female; to keep seed alive upon the face of all the earth.

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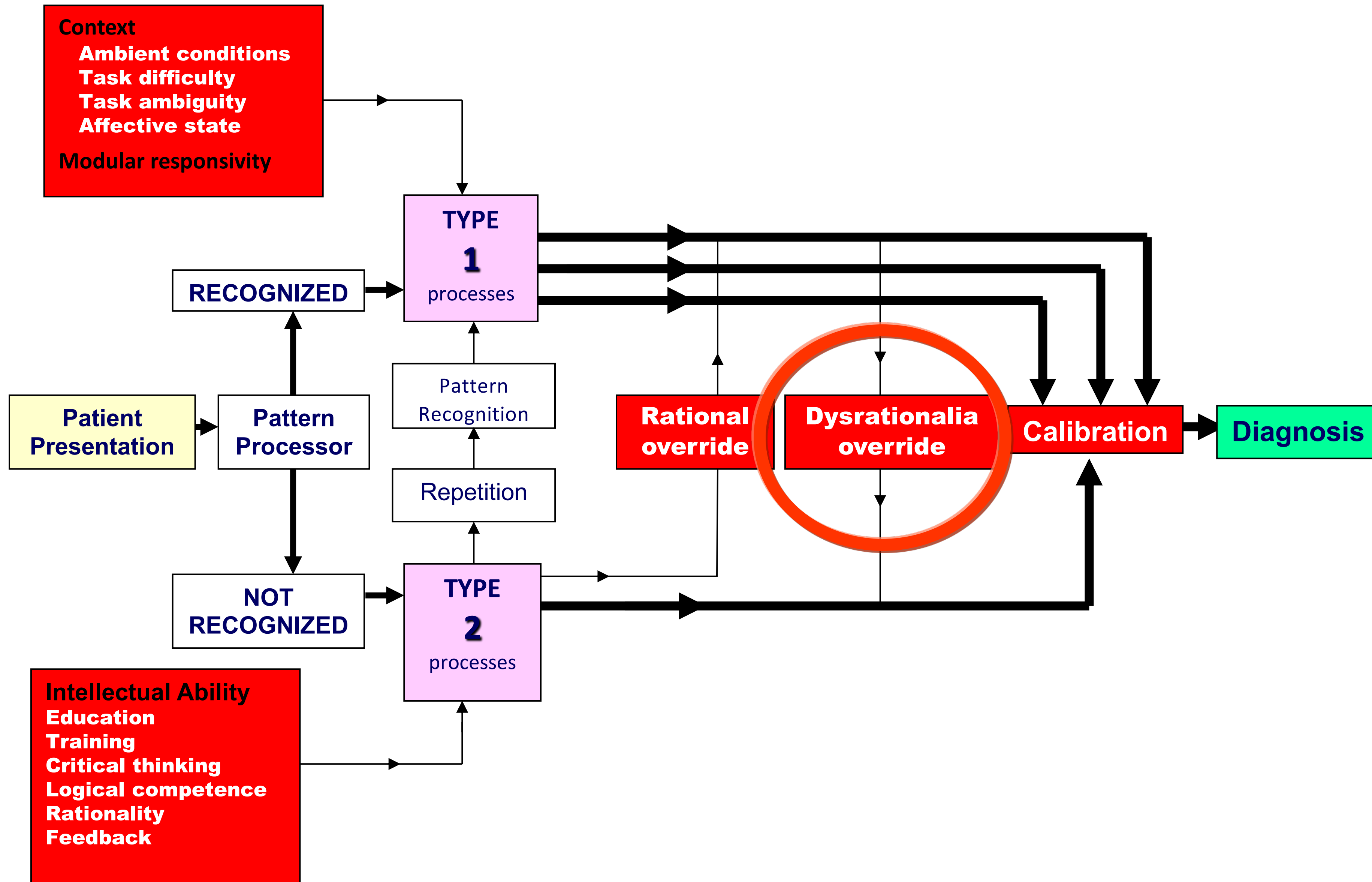

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Once you see a pattern, its hard to not see it……

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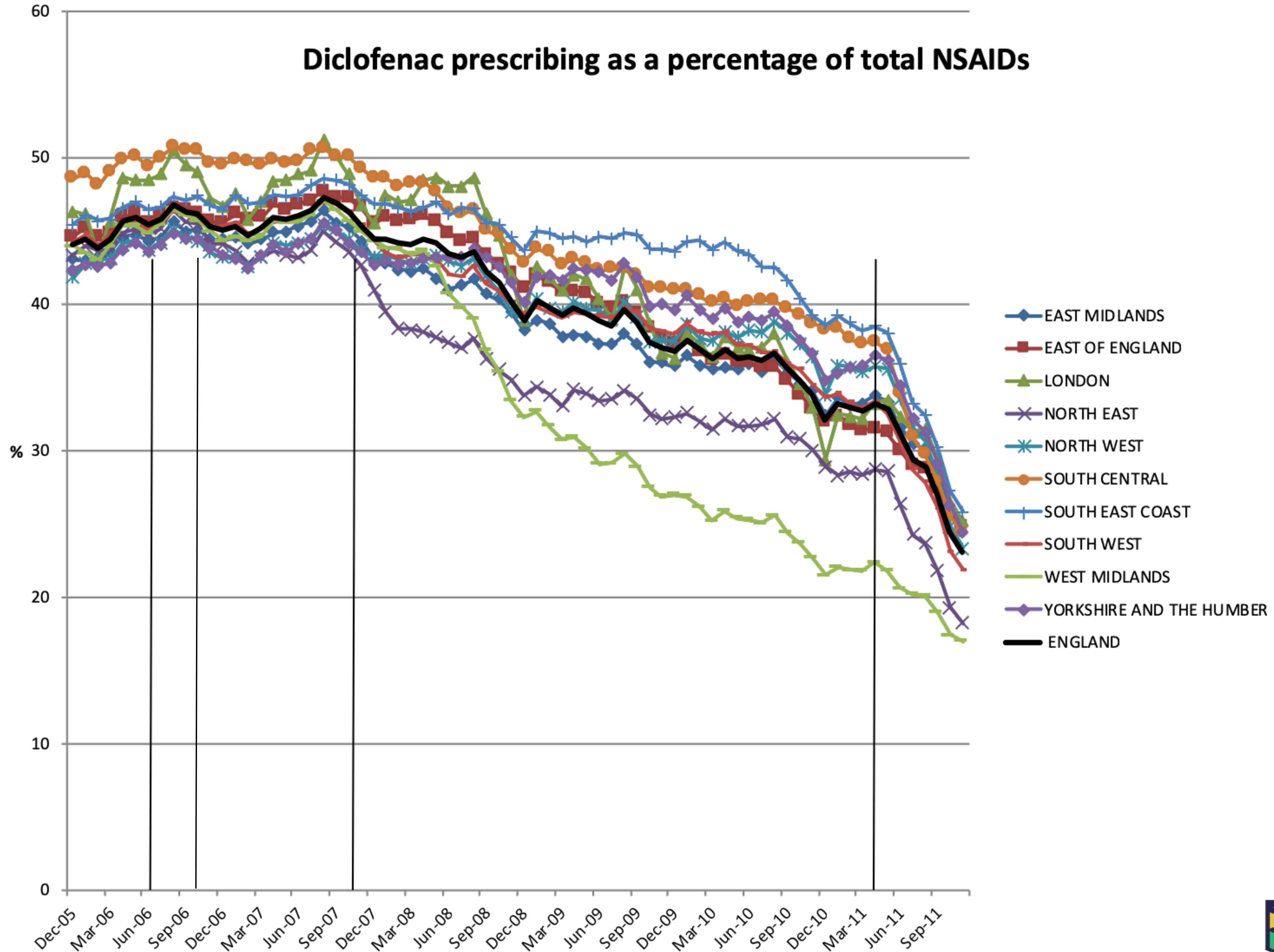

Diclofenac prescribing as a percentage of total NSAIDs
%
60
50
40
30
20
10
0
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
EAST MIDLANDS
EAST OF ENGLAND
LONDON
NORTH EAST
NORTH WEST
SOUTH CENTRAL
SOUTH EAST COAST
SOUTH WEST
WEST MIDLANDS
YORKSHIRE AND THE HUMBER
ENGLAND
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>100 cognitive biases

- Anchoring bias – early salient feature
- Ascertainment bias – thinking shaped by prior expectation
- Availability bias – recent experience dominates evidence
- Bandwagon effect – we do it this way here
- Omission bias – natural disease progression preferred to those occurring due to action of physician
- Sutton's slip – going for the obvious
- Gambler's fallacy – I've seen 3 recently; this can't be a fourth
- Search satisficing – found one thing, ignore others
- Vertical line failure – routine repetitive tasks leading to thinking in silo
- Blind spot bias – other people are susceptible to these biases but I am not

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Information and decision making

- Most decisions are based on what we think is the evidence, not what we know is the evidence
- No one has time to appraise all of the evidence on everything, and even if that were possible the human brain can't recall and compute it, and certainly not in a 10 minute primary care consultation
- We use brief reading and talking to other people as our information sources
- We often use patterns to make a diagnosis
- We create mindlines (= patterns) of what to do in common situations

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Introduction

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Qualitative or quantitative?

Based on an idea by Cecil Helman, quoted by Trisha Greenhalgh

- A small child runs in from the garden and says “Mummy! The leaves are falling off the trees!”
- “Tell me more”, his mother says
- “Well, 5 leaves fell in the first hour, 10 fell in the second hour, then….”
- His twin sister also runs in with the same excited statement
- “Tell me more”, her mother says
- “Well, the leaves that are falling are big and flat and mostly yellow or red, but leaves are falling off some trees but not others, and why didn’t any fall last month?...”

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You see a young man with severe Crohn's disease of recent onset.

You are struck by the fact that his diet has, for the last four years, consisted largely of three bowls of breakfast cereal a day.

Over the next three months you see four more cases of Crohn's disease and two of them have a similar dietary history.

- Does this mean breakfast cereals cause Crohn's disease?
- How could you find out?

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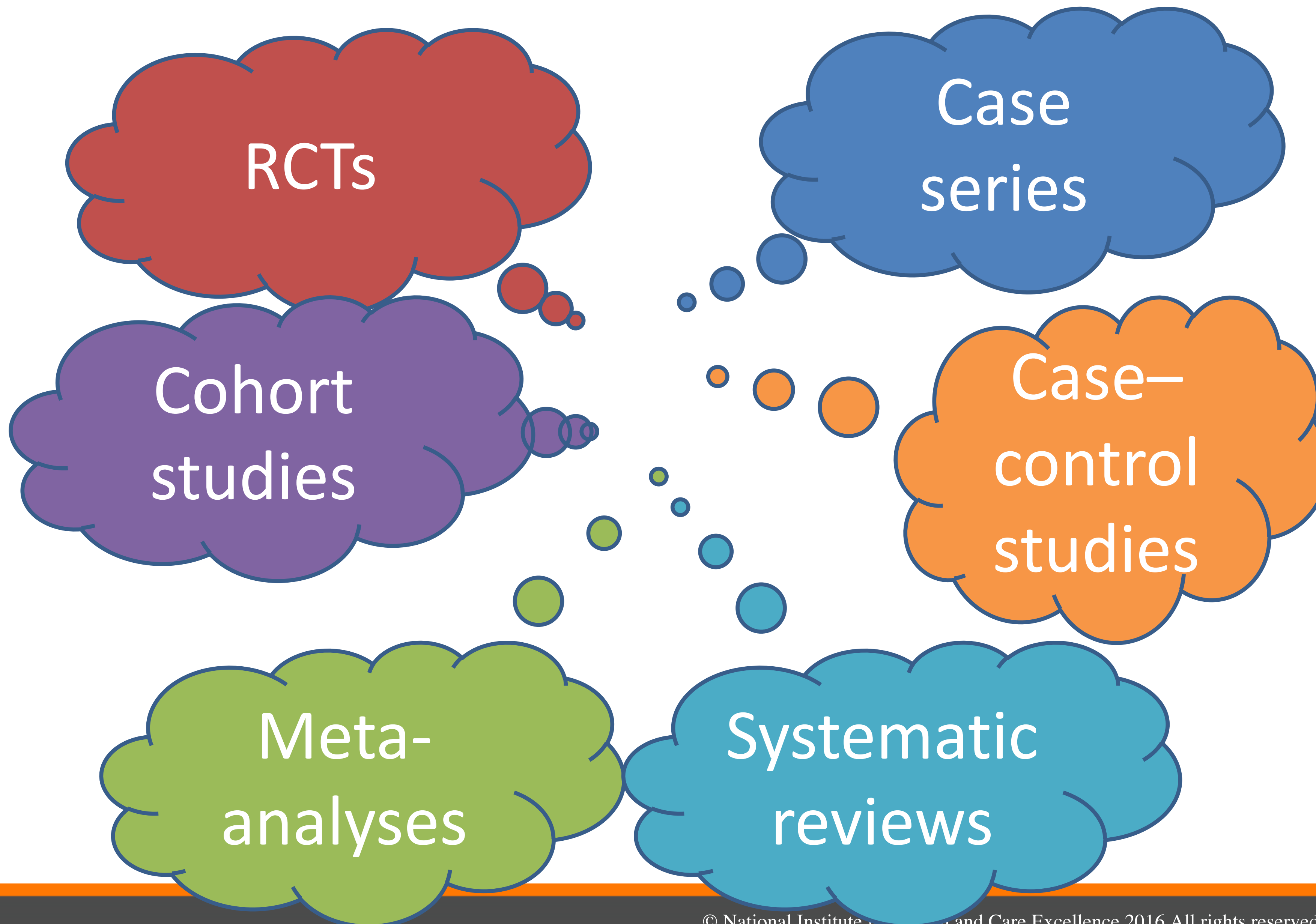

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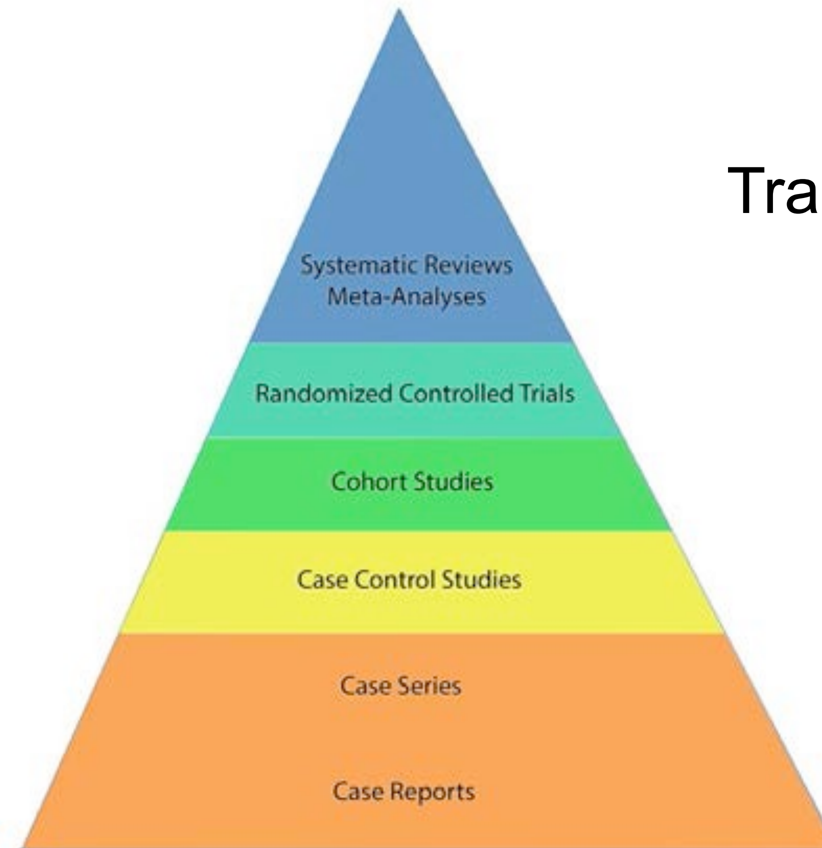
A traditional hierarchy of evidence

Murad H, et al Newsletter of the International Society for Evidence-Based Health Care October 2015



Traditional pyramid

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Why are RCTs the “gold standard”?

Egger M, et al. BMJ 1998; 316: 140-4

Does beta-carotene reduce CV mortality?

Cohorts

Male health workers (United States)

Male social insurance workers (Finland)

Female social insurance workers (Finland)

Male chemical workers (Switzerland)

Hyperlipidaemic men (United States)

Nursing home residents (United States)

Cohorts combined

Trials

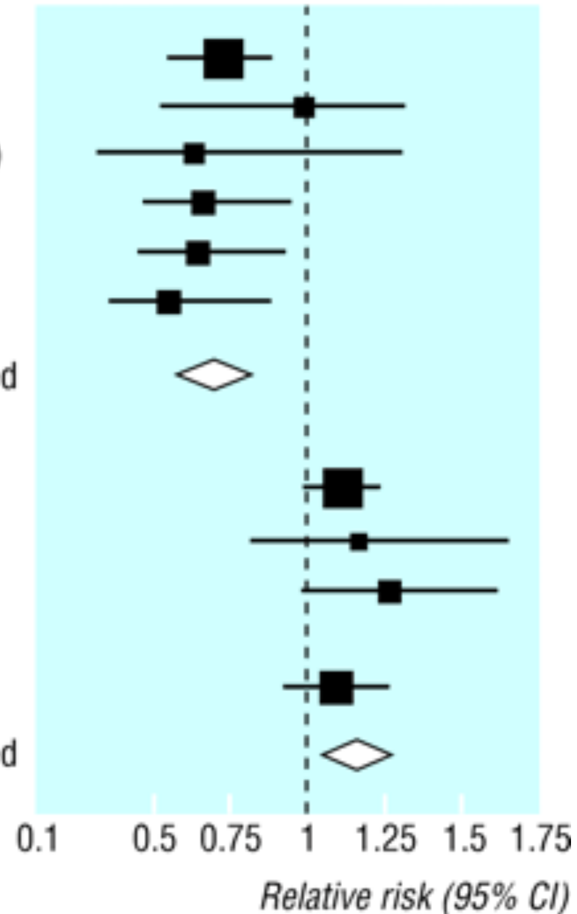
Male smokers (Finland)

Patients with skin cancer (United States)

Former smokers, asbestos workers (United States)

Male physicians (United States)

Trials combined



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Why don't we always use an RCT?

- Ethics
  - An RCT on the effect of smoking on heart disease would not be ethical
- Feasibility/ practicality/appropriateness
  - It might not be feasible to recruit enough people with a rare condition to conduct an RCT large enough to give a reliable answer
  - An RCT may not be needed (an RCT of parachutes?) or suitable (e.g. risk of rare or very long term adverse effects)
- Cost
  - A large RCT is very expensive to run. Is the cost justified by the importance of the research question?

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Summary

- There are several types of evidence available
- The ‘gold standard’ is a large, well designed, applicable RCT where potential bias has been minimised
  - A well conducted meta-analysis of several such RCTs provides very high quality evidence
- RCTs may not always be available or indeed appropriate to the question we have
- Using a hierarchy of evidence will help us judge the level of evidence available

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the MedBridge study, 2017-2020

Medication Reviews Bridging Healthcare:

https://www.akademiska.se/forskning-och-utbildning/forskning/har-bedriver-vi-forskning/medbridge-studien/medbridge-study/

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Aim:

- To study the effects of hospital-initiated comprehensive medication reviews, including active follow-up, on older patients' healthcare utilisation

[Study protocol published in *Contemp Clin Trials.* 2017 Jul 21;61:126-132]

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Design:

- RCT (Pragmatic, open-label, outcome-blinded, multicentre, three-treatment, cluster-randomised, controlled, crossover trial)
- 8 wards at 4 hospitals in 3 Swedish regions: Uppsala University Hospital and hospitals in Enköping, Gävle and Västerås
- Inclusion criteria: ≥65 years admitted to study ward

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Interventions:

- Intervention 1:
  Medication reconciliation upon admission, comprehensive medication review, medication reconciliation upon discharge

- Intervention 2:
  Same as 1, incl. medication referral to GP if needed, 2 phone calls: 2-7 days and 1-2 months after discharge

- Control:
  Usual care (no pharmacist involved)

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The interventions

Admission →

Patient interview
Medication reconciliation

Medication review
Discussions with physician and patient
Daily monitoring
Patient education

Discharge counseling
Transferral of information
Medication referal to GP

→ **Discharge** →

- Follow-up phone call(s)

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Outcome measures:

Primary

Power calculation: 2310 patients

- **Incidence of unplanned hospital visits during 12-month follow-up**

Secondary

- Medication-related admissions, GP visits, Costs of hospital based care, Mortality during 12-months,
- Time-to-primary outcome, primary outcome during 1-, 3- and 6-month

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Waiting for the results on primary and secondary outcomes…

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What else do you want/need to know??

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Some examples

Process evaluation		Qualitative evaluation
Recruitment process OK? Bias? Flow diagram	Intervention delivery assessment	If interventions were not delivered, why?
Baseline characteristics? Charlson Comorbidity Index score	-Did all patiants receive all parts of the int.? How much time did it take?	What did the patient and carers think of the interventions?
Groups comparable?	Identification of DRP – what types? Same in all hospitals? DRP resolved?	Was there a multiprofessional team in place, where the pharmacist was truly integrated?
		What did the physicians think? What worked/did not work well?

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Conclusions

- Remember how humans operate and make decisions
  - Bounded rationality
  - Pattern recognition and cognitive biases
- Qualitative research is very different to quantitative and requires a different approach

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