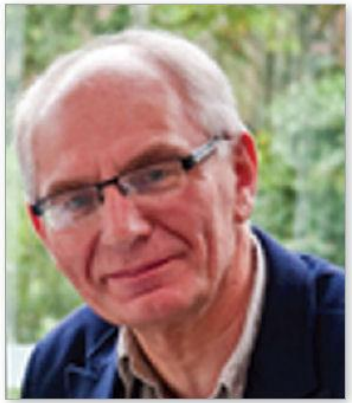


# Professor Tony Dowell

Professor of Primary Health Care and General Practice

University of Otago

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# Associate Professor Nikki Turner

Academic General Practitioner

University of Auckland

University of Otago (Wellington Campus)

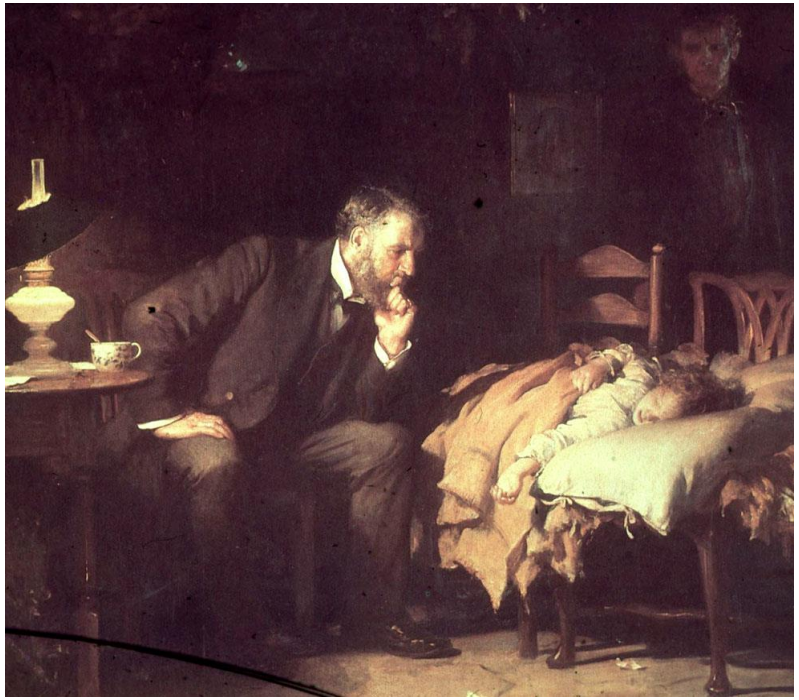

Friday, August 09, 2019

(Plenary)

8:30 - 8:50 General Practice is a Non -linear Science: How Do We Do It?

# General Practice is a Non -linear Science: How Do We Do It?

Tony Dowell and Nikki Turner



# Today

- The nature of our craft
- From linear to beyond
- Complexity and implementation science
- A case study of illness
- A complex fulfilling future

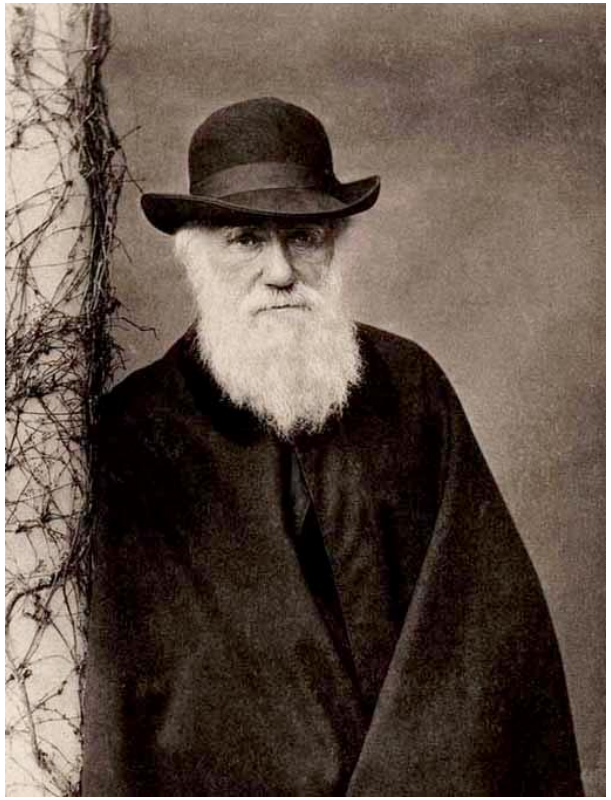
# Mr C D – 43 year old

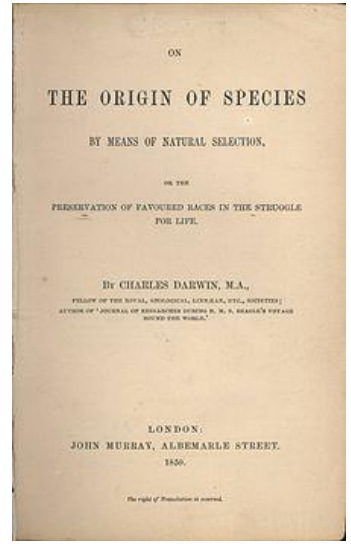
- General malaise, exhaustion,  vertigo, dizziness, muscle spasms, nausea and vomiting, abdominal cramps, bloating and nocturnal flatulence, headaches, alterations of vision, breathlessness, eczema, racing heart, tinnitus, chest pain
- Symptom onset 22 years
  - Preparing to go overseas for two years
  - Returned with significant anxiety
  - Ongoing work  and family stress
  - Additional symptom clusters overtime
  - Lack of response to any treatments

# Mr Charles Darwin

*“ Severely debilitated for long periods of time, incapable of normal life and intellectual production Constant attacks…. stops all work.”*

- Water Treatment
- Mesmerism
- Clairvoyance
- Homeopathy




ON

THE ORIGIN OF SPECIES

BY MEANS OF NATURAL SELECTION,

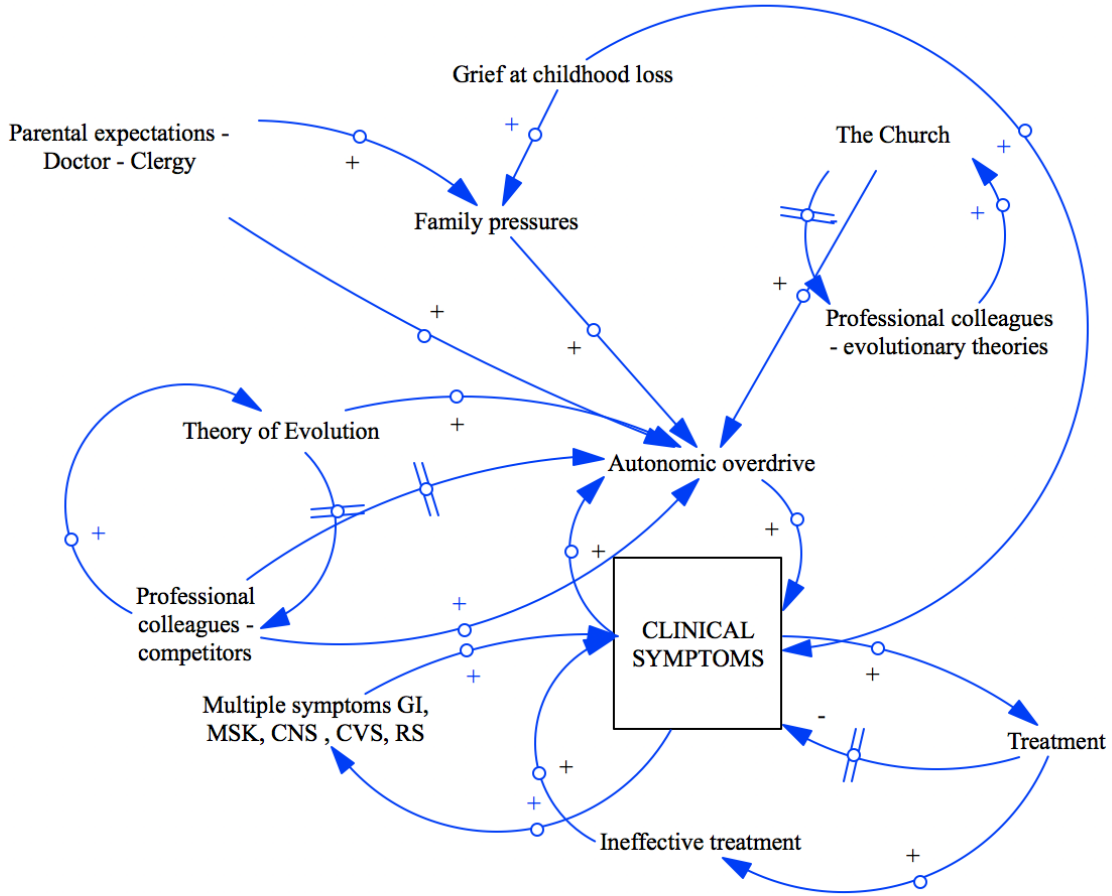
OR THE

PRESERVATION OF FAVOURED RACES IN THE STRUGGLE FOR LIFE.

By CHARLES DARWIN, M.A.,

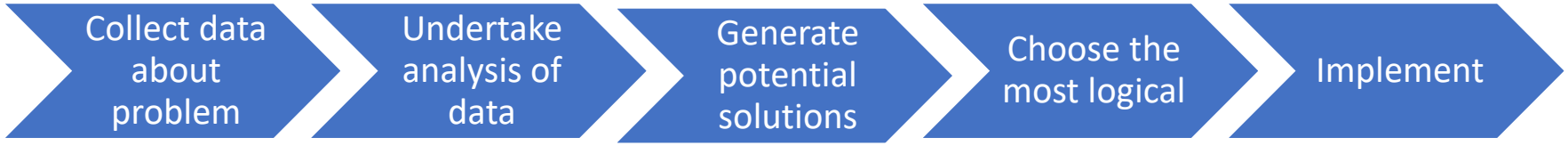
LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1859.

# Causal loop  diagram



# Much clinical and health sector activity is embedded in linear thinking

Linear thinking is often appropriate and helpful




BUT

- Traditional linear thinking and science may not work for more complex problem solving

# Simpler linear examples in health

Health Pathways

## Elbow Fractures

### Assessment

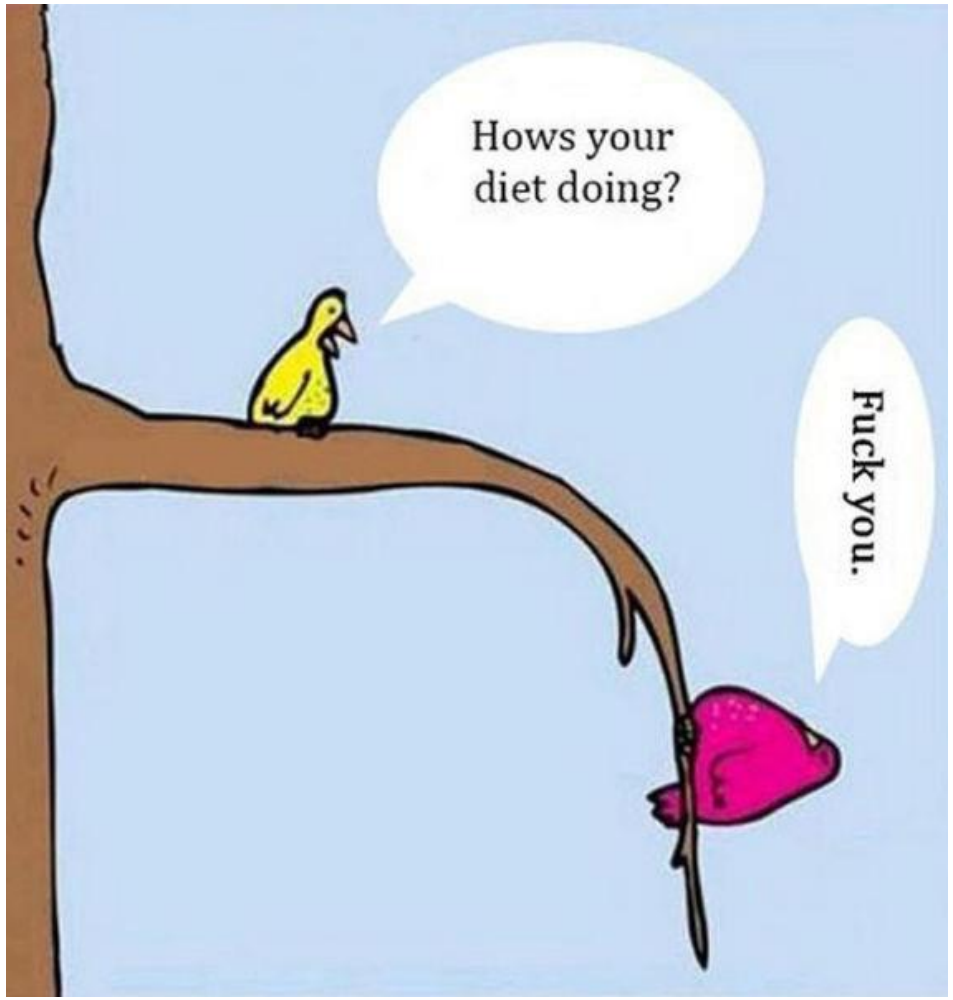
Arrange X-ray for:

- children aged < 12 years, as they rarely sprain ligaments.
- elderly patients, as they are more like to fracture bones than sprain ligaments.

### Management

1. Manage according to fracture type.
2. If unsure whether there is a fracture, consider a backslab and reassess the following day.
3. Consider whether this is a minimal trauma fracture and contact Fracture Liaison Service for assistance arranging appropriate investigation and treatment.
4. Encourage patients to move the fingers, wrist and shoulder through full range of motion 3 to 4 times per day.
5. Elderly patients are prone to joint stiffness, so need early mobilisation.
6. Consider allied health support if patient is:
    - experiencing barriers to recovery, or if there is a strength, ROM, proprioceptive, and functional deficit or if pain is a key feature, consider physiotherapy assessment.
    - experiencing difficulty with everyday activities. Consider occupational therapy.
    - returning to work, or sustaining work tasks. Consider work assessment and rehabilitation.

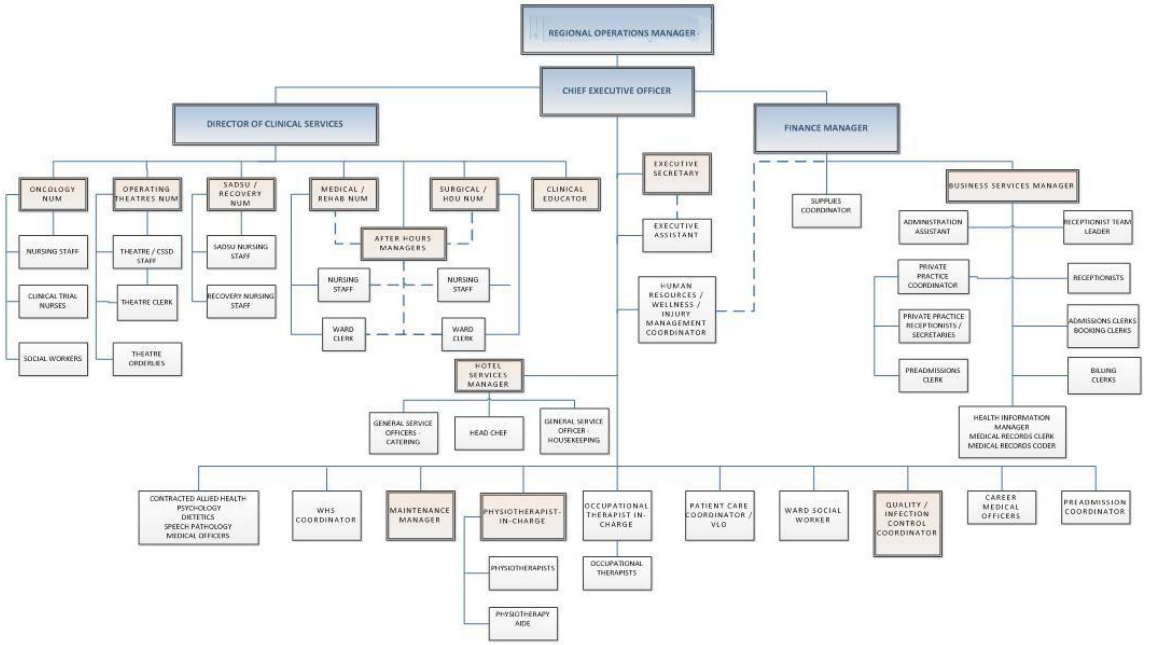
# Solutions often also linear

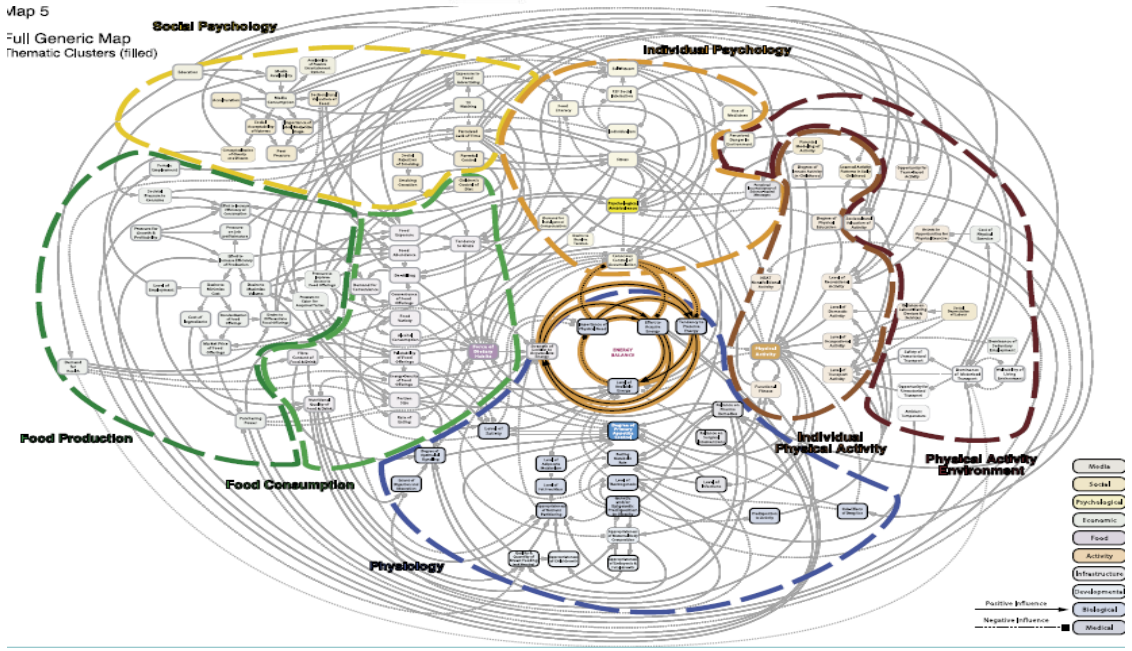



For every complex problem there is an answer that is clear, simple,
**and wrong**.

H. L. Mencken

# The way things are



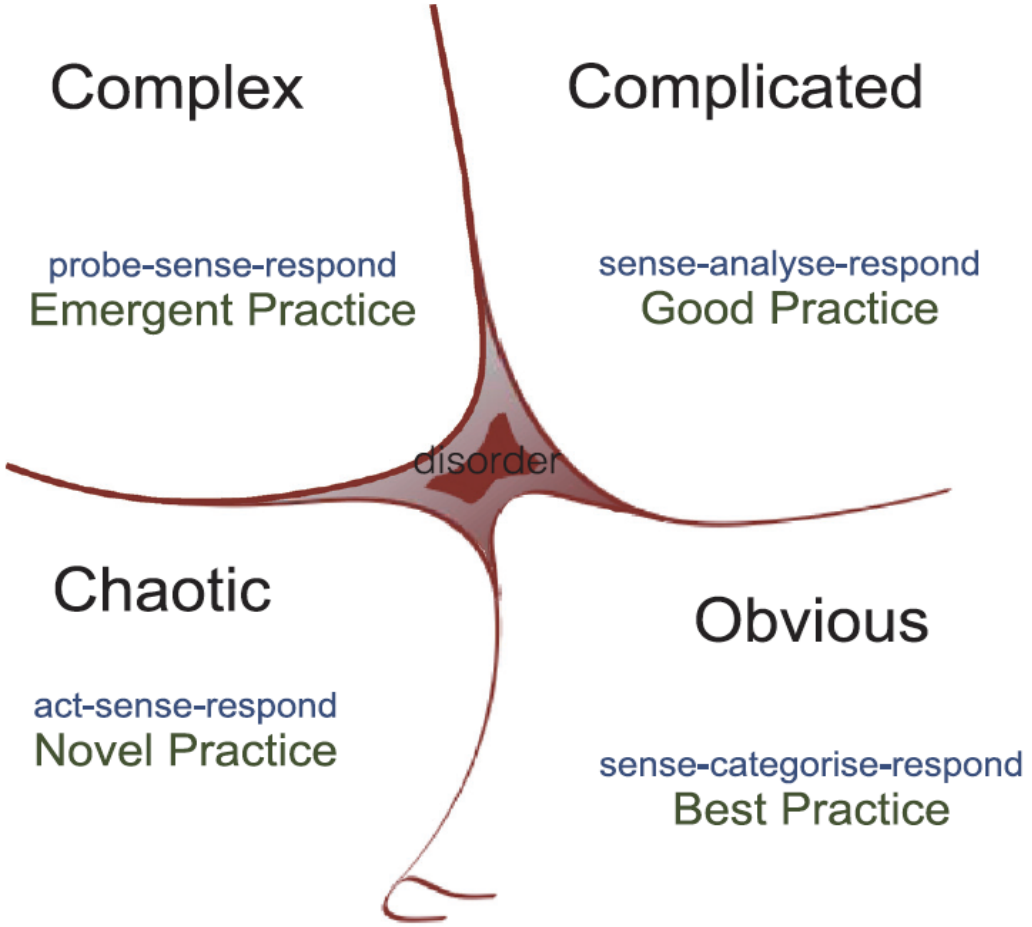

Braithwaite,J et al .(2017)Complexity Science in Healthcare –Aspirations, Approaches, Applications and Accomplishments: A White Paper. Australian Institute of Health Innovation, Macquarie University: Sydney, Australia.

# Complexity Science and Health Care

*"Every system is perfectly designed to get the results it gets. "*

- Some health problems are simple.
- Many are complicated
- Health Service Delivery is Complex
- Chaos and Disorder
  - More frequent than is helpful

*Fig. 1 Categories of medical complexity. Image accessed from and permission for use of image granted by Dave Snowden of Cognitive Edge*



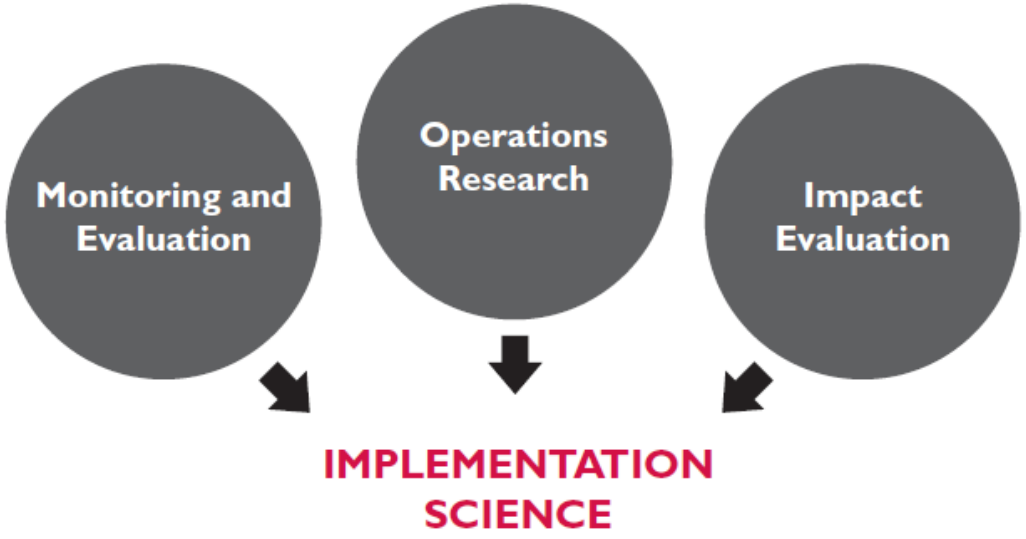

Gray B. The Cynefin framework: applying an understanding of complexity to medicine. Journal of primary health care. 2017 Dec 1;9(4):258-61.

# Implementation Science

*The scientific study of methods to promote the systematic uptake of research findings into routine practice, and, hence, to improve quality and effectiveness*

Logical Solutions to the analysis that Complexity Science defines

- Applies to individual clinical encounters and health systems



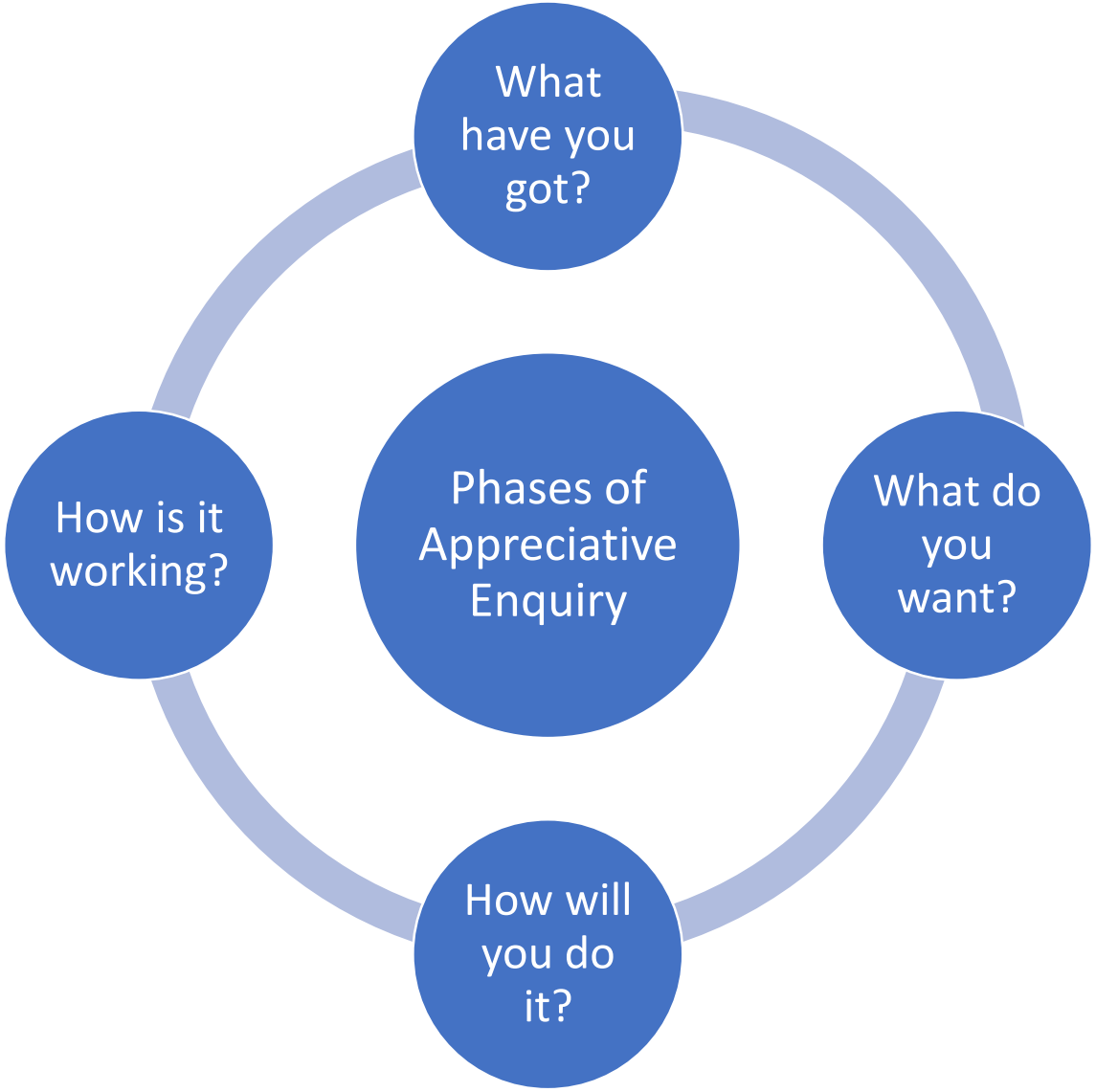
# Implementation Science
# EIGHT Requirements for Behavior Change

1. Is there valid, legitimate, accepted evidence for what we are doing ?
2. Do we / they  have the knowledge, skill ?
3. Are we all supportive of what is done?
4. What about external expectations, - system or society?
5. Is there patient acceptance?
6. IS it reasonable to go ‘off piste’ and ignore the evidence?
7. Why would we do that?
8. Are there feasible methods/systems to deliver care ?

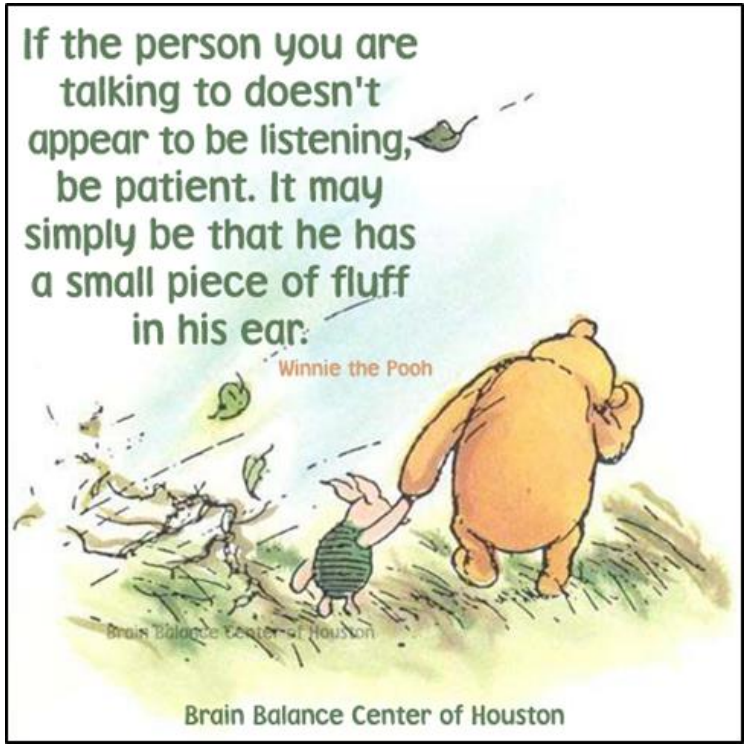
# Appreciative Inquiry

*Appreciative inquiry is a model that seeks to engage stakeholders in self-determined change*

- Based on the premise that people want to make things work well

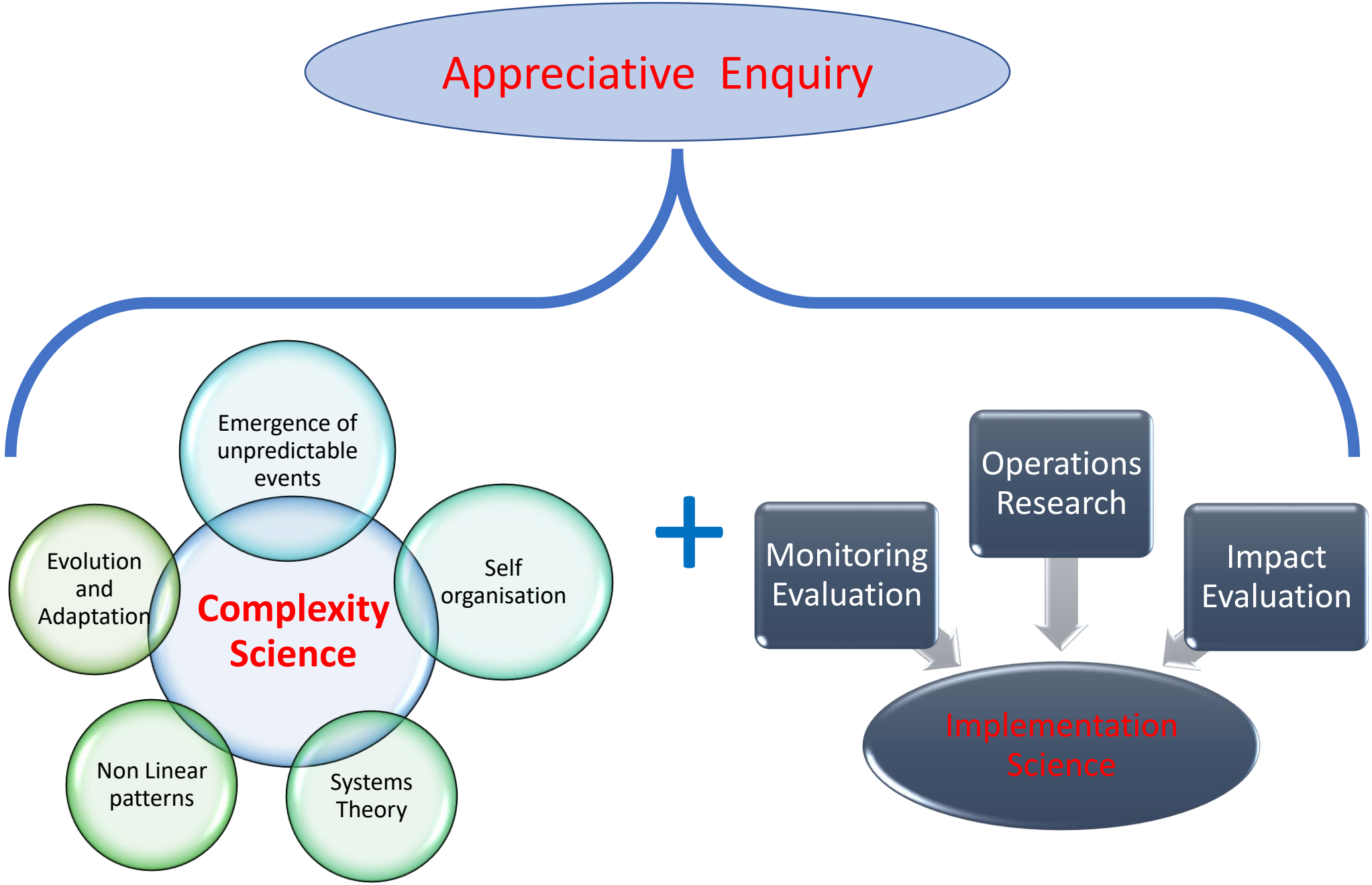


# …and listening



# Putting it all together

- Synthesise
- Incorporate
- Combine
- Make whole
- Amalgamate
- Arrange
- Blend
- Harmonise
- Orchestrate
- Unify
- Symphonise




Dowell AC, Menning L, MacDonald N, Turner N. An evolution in thinking to support the post 2020 global vaccine strategy: The application of Complexity and Implementation Science. Vaccine (2019) Volume 37, Issue 31, 4236-4240 https://doi.org/10.1016/j.vaccine.2019.05.096

# And into the patient reality

67 year old

- " OA"  both knees
  - Increasing pain
  - Side effects to codeine
- Co-morbidities
  - Anxious depression, hypertension, diabetes
- BMI 37
- Social situation
  - Own business, hard to retire, financially tight
  - "*my wife doesn't understand me*"
  - Fearful of long-term reduction in mobility

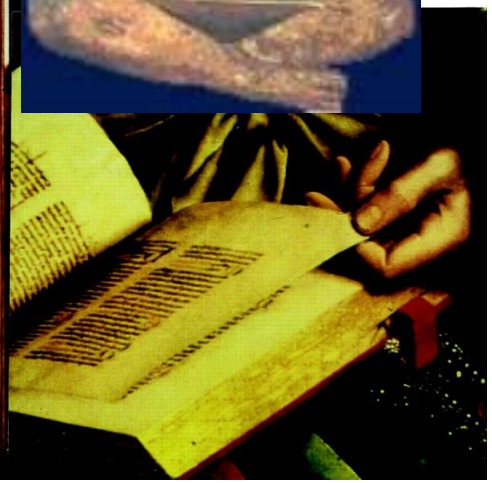
Went to Ortho for consideration  joint replacement

- Declined as not high enough priority, 'managing too well"

**Disclaimer: Any resemblance to real people, alive or dead, is entirely co-incidental, unless of course you think otherwise, in which case, it isn't…..**

# Osteoarthitis

- Iguanodons
- Pharonic Egypt – Scribes and Viziers
- Hippocrates is silent
- Painters



**Shakespeare**

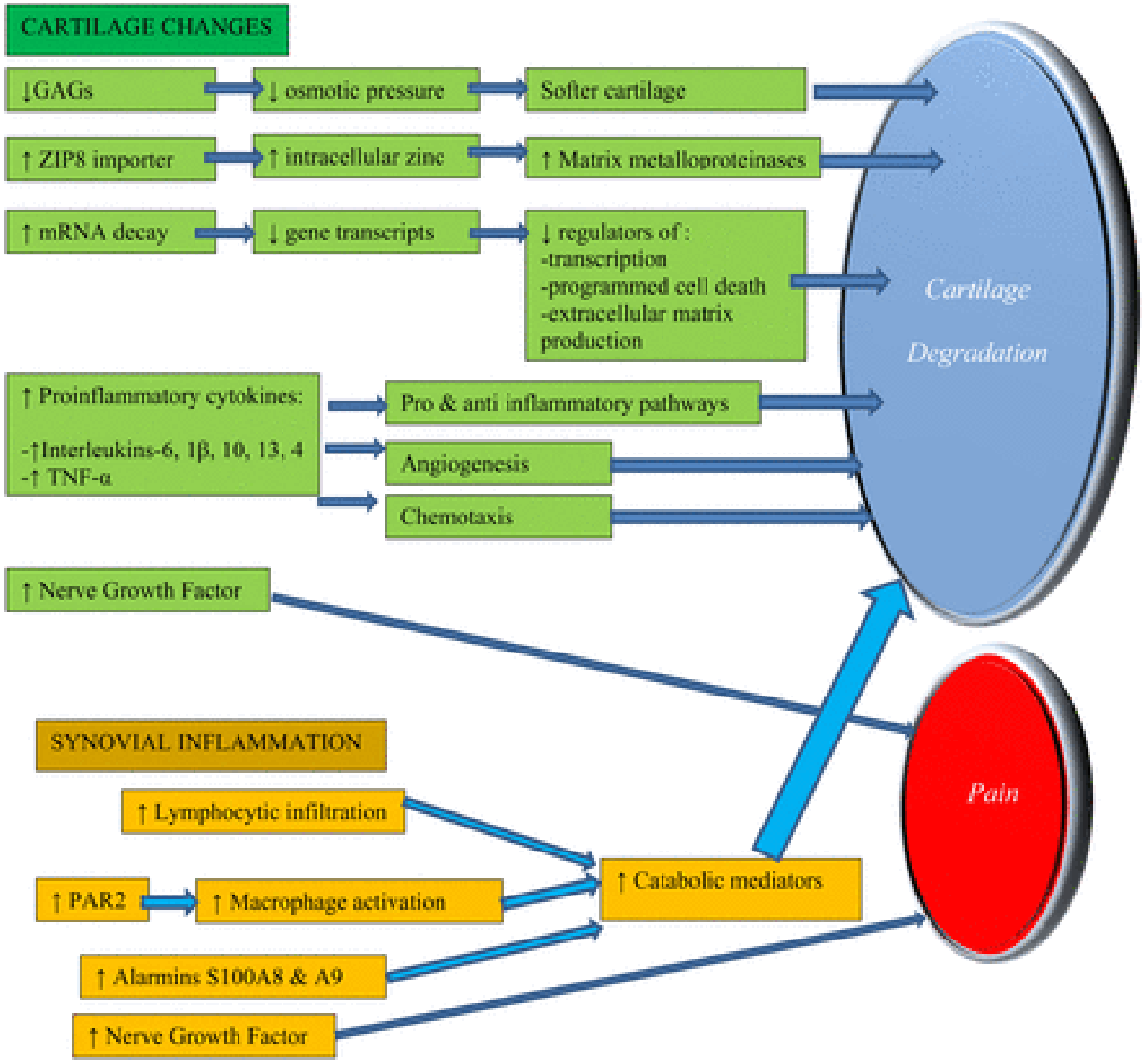
Titania :*The winds...have suck'd up from the sea*

*Contagious fogs...That rheumatic diseases do abound.*
A Midsummer Night's Dream

Prospero: *I'll rack thee with old cramps, Fill all thy bones with aches and make thee roar.*
The Tempest

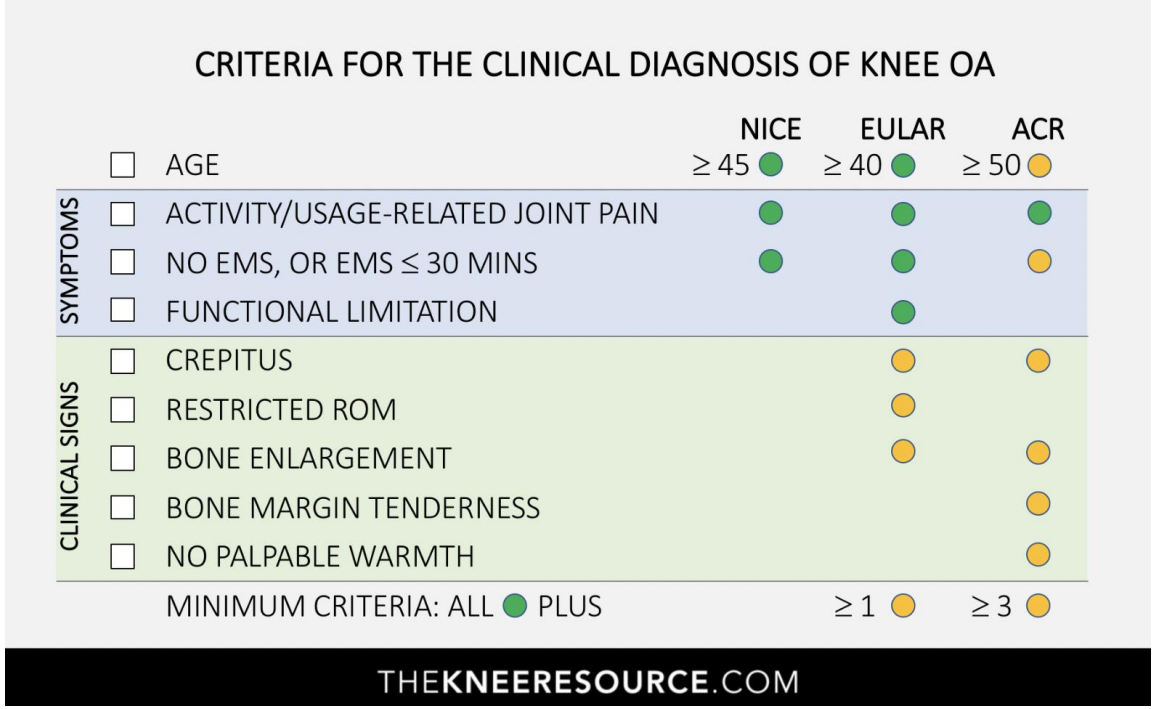
# Aetiology

- Age
- Sex
- Heredity
- Heberdens – autosomal
- Metabolic disorders
- Ethnicity – European
- Macrotrauma and repetitive microtrauma
- Overweight



# Estimate 30% of the worlds' population .....

## Specialist Osteoarthritis




## GP Osteoarthritis

- Age >40 (usually )
- Symptoms >3 months
- Subjective pain / stiffness
  - (activity related)
- Painful or restricted ROM
- Maybe
  - Tenderness / Swelling
  - Giving way
  - ? X-ray changes
- Should not have a better explanation
  - Gout / trauma / other inflammatory

# Standing Sock Sign ( SSS)

+ ve

+/ - ve

- ve

# OA "*treatment*" ?!?

**“People should exercise and lose weight”**

+

- Pain relief
- Specific and expert physiotherapy



**PINEAPPLE for ARTHRITIS**

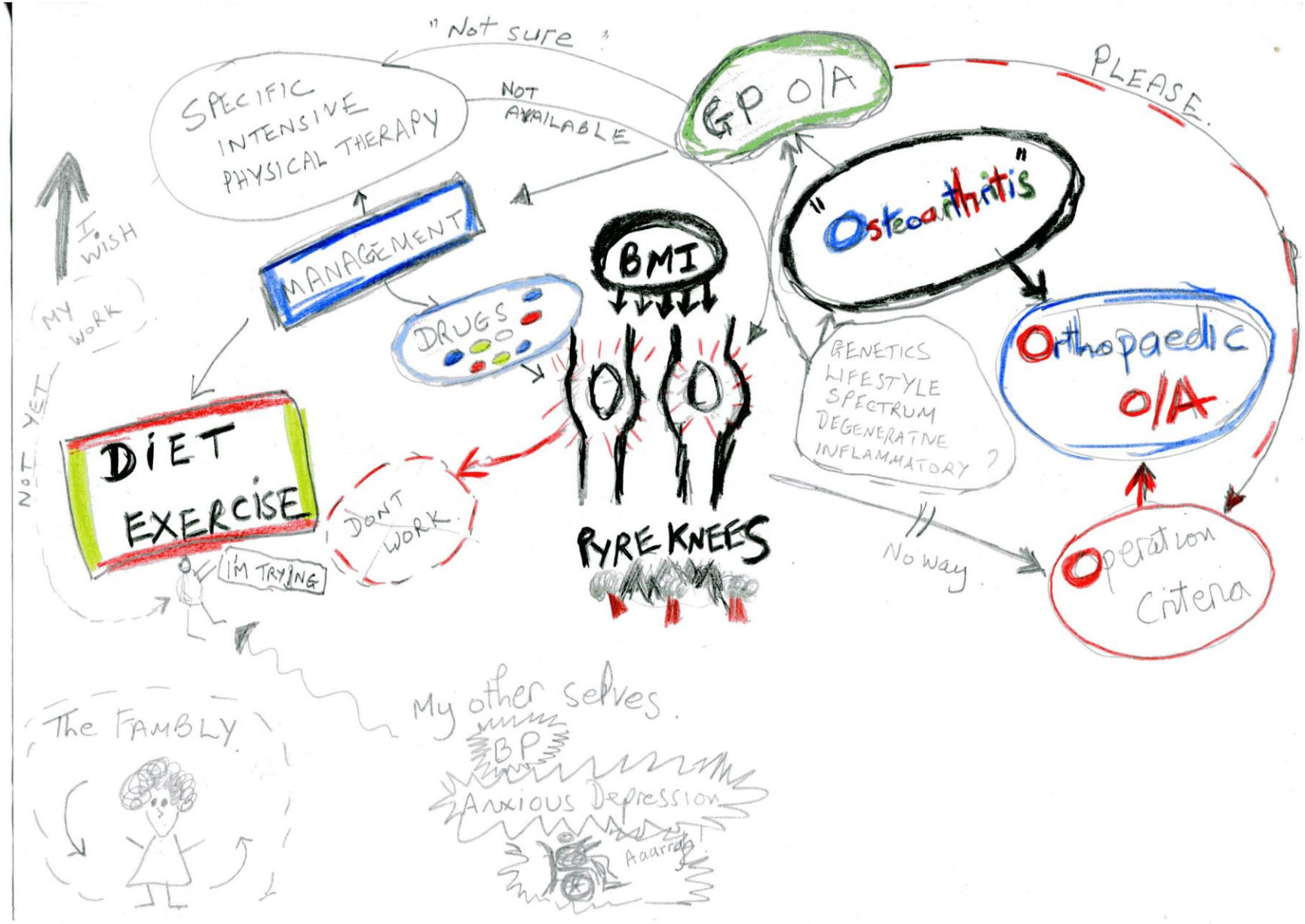
Pineapple is a highly effective remedy for rheumatoid arthritis and osteoarthritis. A glass of fresh pineapple juice will give you a good supply of bromelain enzymes. This is the kind of enzyme that provides anti-inflammatory effect that reduces arthritic pain and provides great relief from post operative swelling.





Arthritis Knee Pain Treatment Medicine

# WGOD


"Not sure"
SPECIFIC INTENSIVE PHYSICAL THERAPY
NOT AVAILABLE
GP O/A
PLEASE.
I WISH
MY WORK
NOT YET
MANAGEMENT
DRUGS
BMI
"Osteoarthritis"
GENETICS
LIFESTYLE
SPECTRUM
DEGENERATIVE
INFLAMMATORY ?
Orthopaedic O/A
DIET
EXERCISE
DONT WORK
I'M TRYING
PYRE KNEES
No way
Operation Criteria
The FAMBLY
My other selves.
BP
Anxious Depression
Aaarrgg!

# The patient consult in a complex world – OA

## The story

- What is the patient narrative (AI)
- What are the Interactional complexities eg family relationships, current stress, future desires, societal pressures

## The response

- General lifestyle level
  - Brief interventions and repeated
- Implementation science Current and new emerging EBM eg
  - Best pain management options
  - Physio specifically tailored to the specific OA joint, acupuncture
  - Genomics may offer opportunity to tailor more eg drug genomics
- Exploring the role of the connected pieces

## The feedback loops

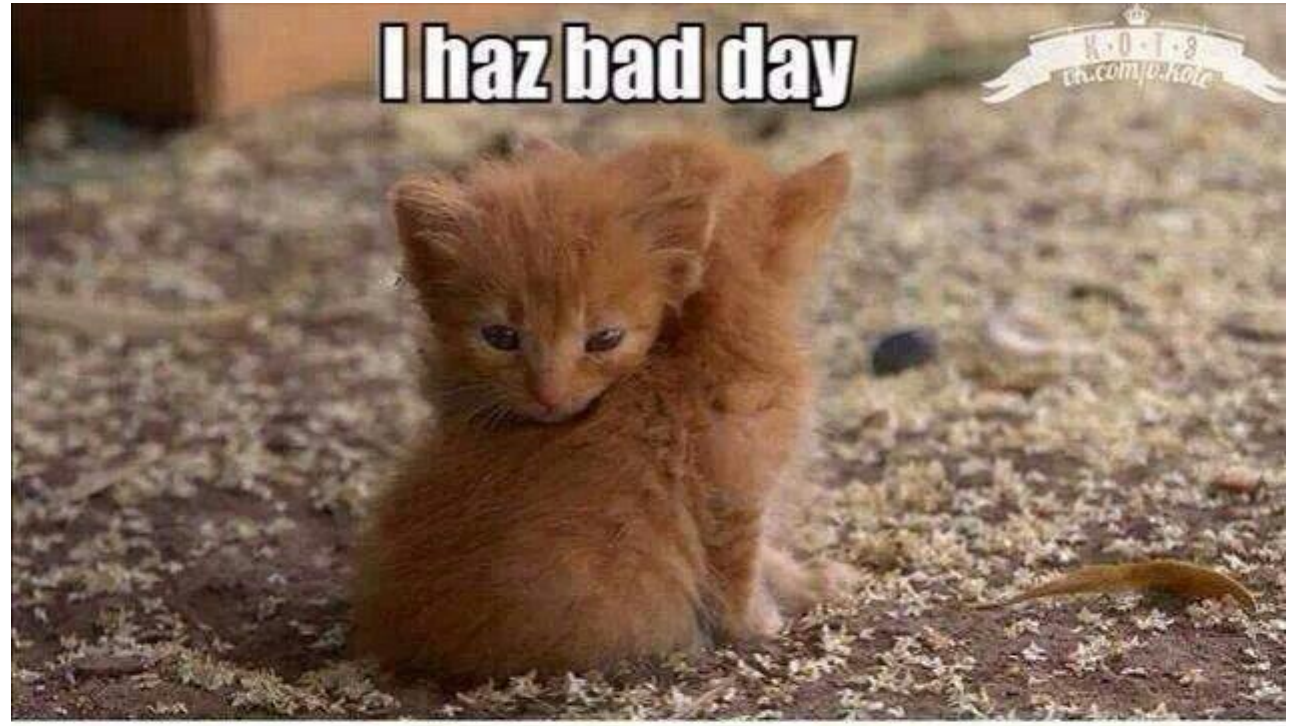
- Relationships
- Repeat visits
- Pulling in broader networks
- Reviewing evidence

# Osteoarthritis – from  to 

- OA is not a single 15 min consultation – Long Term Condition Care
- Current simplistic messages inadequate
  - Pain relief, exercise, weight management
- Opportunities to review complexity and implement new evidence
  - pain modulation
  - psychosocial eg social connectivity, loneliness responses
  - Societal response  eg poverty reduction and weight management
  - Stay awake for new science eg Genomics....coming soon
- The rediscovering of Therapeutic compassion

# General Practice and Primary care – NOW

- Things are too complicated and changing too fast
- I don’t know enough – Generalists are not ‘experts’ on specific topics
- I am expected to be the co-ordinator of all my patient needs
  - Secondary services are piecemeal and partialist
- Systems not completely fit for purpose
- Not enough time
  - Or ..time distribution not always working

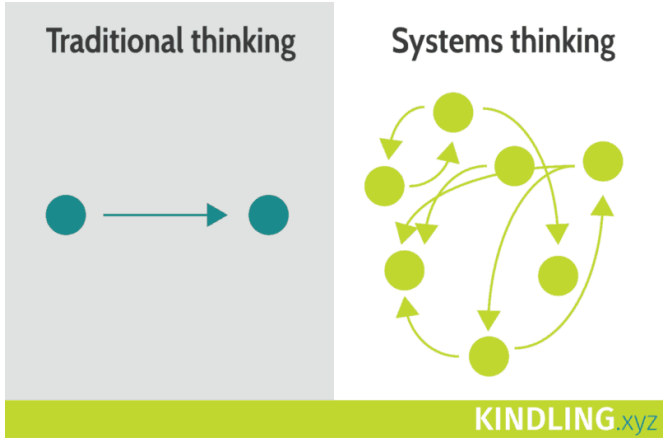

I haz bad day


Hug me

# GP new (and old) world skills


How to use knowledge - NOT how to retain it

We need protected time to listen




Working within systems and with new systems

- New tools, new communication styles
- New style referral pathways
- New partnerships
- New style PMS

# Our happily complex future

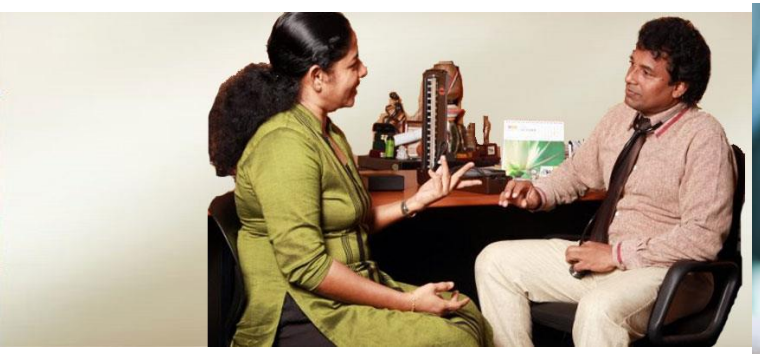
- Primary care more complex than the health system acknowledges
- Consultation remains at the heart of health care
- We need to adapt to role of complex care clinicians
- Requires the use of systems science
  - Acknowledge the value of what has gone before (appreciative inquiry)
  - Use of blended new science paradigms – complexity/implementation
  - Use of appropriate tools and resource
    - Clinical pathways , first steps in recognising complexity
    - Local adaptation

# General Practice and Primary Care – Evolution

- More part time GPs
- Increasing team work
  - Specialist Nurse support
  - Clinical pharmacists
  - Clin Psych
  - Navigators
- More recognition of patient complexity
- Ease of communication with secondary services
- …?More flexibility
  - Built in time to listen

# And lets not lose the best of our values

**The  power of the therapeutic relationship**




bigstock-Teamwork-48863816-1


Never underestimate the power of
enthusiasm.


I MADE IT
WITH MY BUM

# and Attitude