Managing What Matters: Overcoming Obstacles to Effective Healthcare

Treating the Whole Person: Optimizing Wellness

RSDSA.org Annual Conference

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8:40-9:35 a.m.

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Obstacles to Care

1. Characteristics of systems of care
2. Human factors common to consumers & clinicians
3. Cognitive errors, design factors, & data
4. Expectations for outcomes

Humans Live in Complex Adaptive Systems (CAS)

- All the parts of the system are interdependent

- Actions have consequences at multiple levels

- Optimizing one part can lead to poor overall system performance

- Systems are driven to self organize

- Organizational structures drive decision behavior+/-
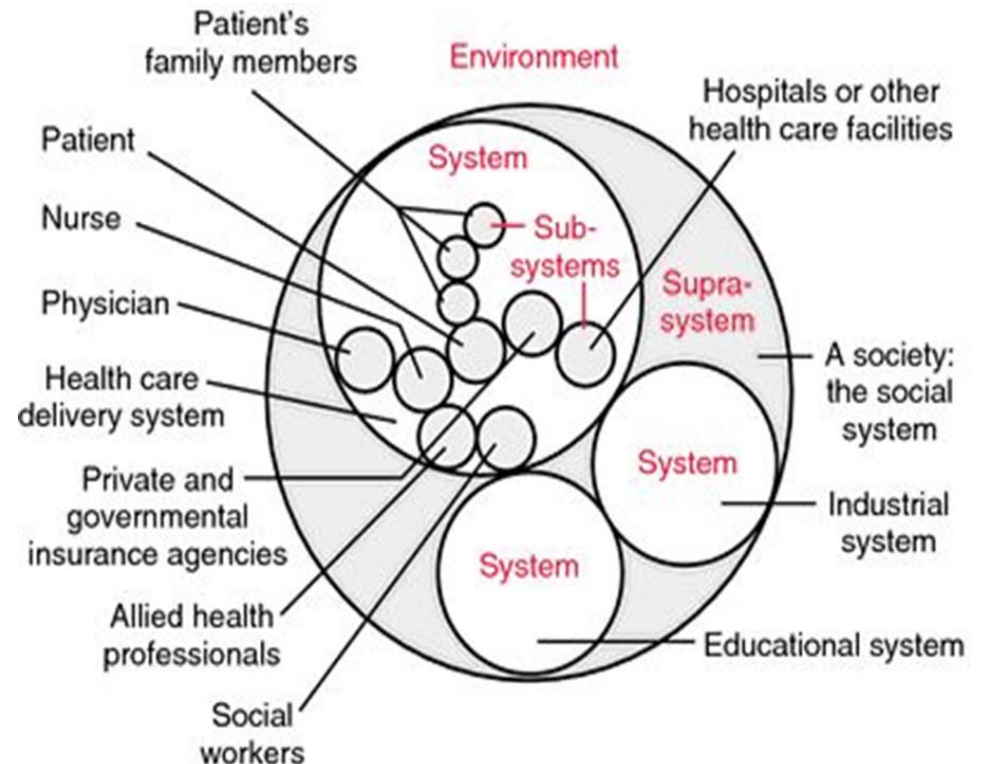
- Mental models influence actions
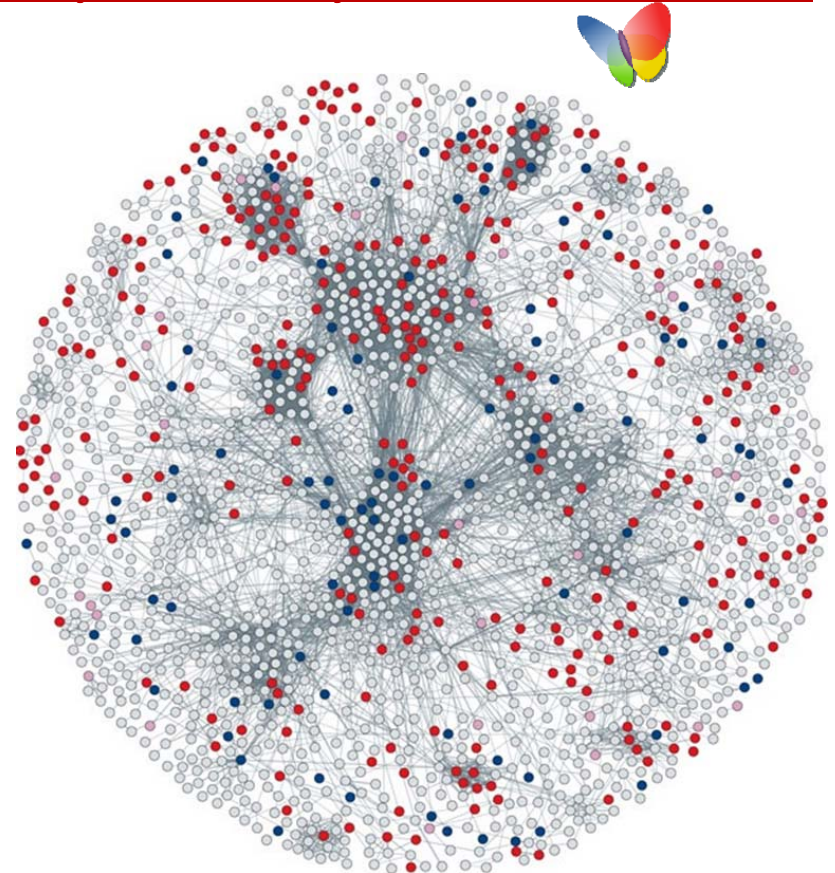
"Coarse Damping"

The elimination of unwanted variations and fluctuations in system behaviors to maintain *equilibrium or homeostasis; the basis for development of measures*

Ex.

- **Chaos** - a form of coarse damping in '*time,*' (*synchronicity, process*)

- **Complexity** – a form of coarse damping of '*structures,*' (*entropy, difference*)

Types of human thinking

System 1 (S1) — Fast, automatic, intuitive

Automatic Activities

Intuitive Thought

Memory

Perception — Considering something beautiful by glancing at it

Expert — Result of prolonged practice

Heuristic — Ability to complete the phrase "bread and ..."

System 2 (S2)
- Slow, deliberate, effortful
- Takes over difficult tasks
- Can program automatic functions of attention and memory

Biases, systematic errors in specified circumstances

Answering easier questions than the ones asked

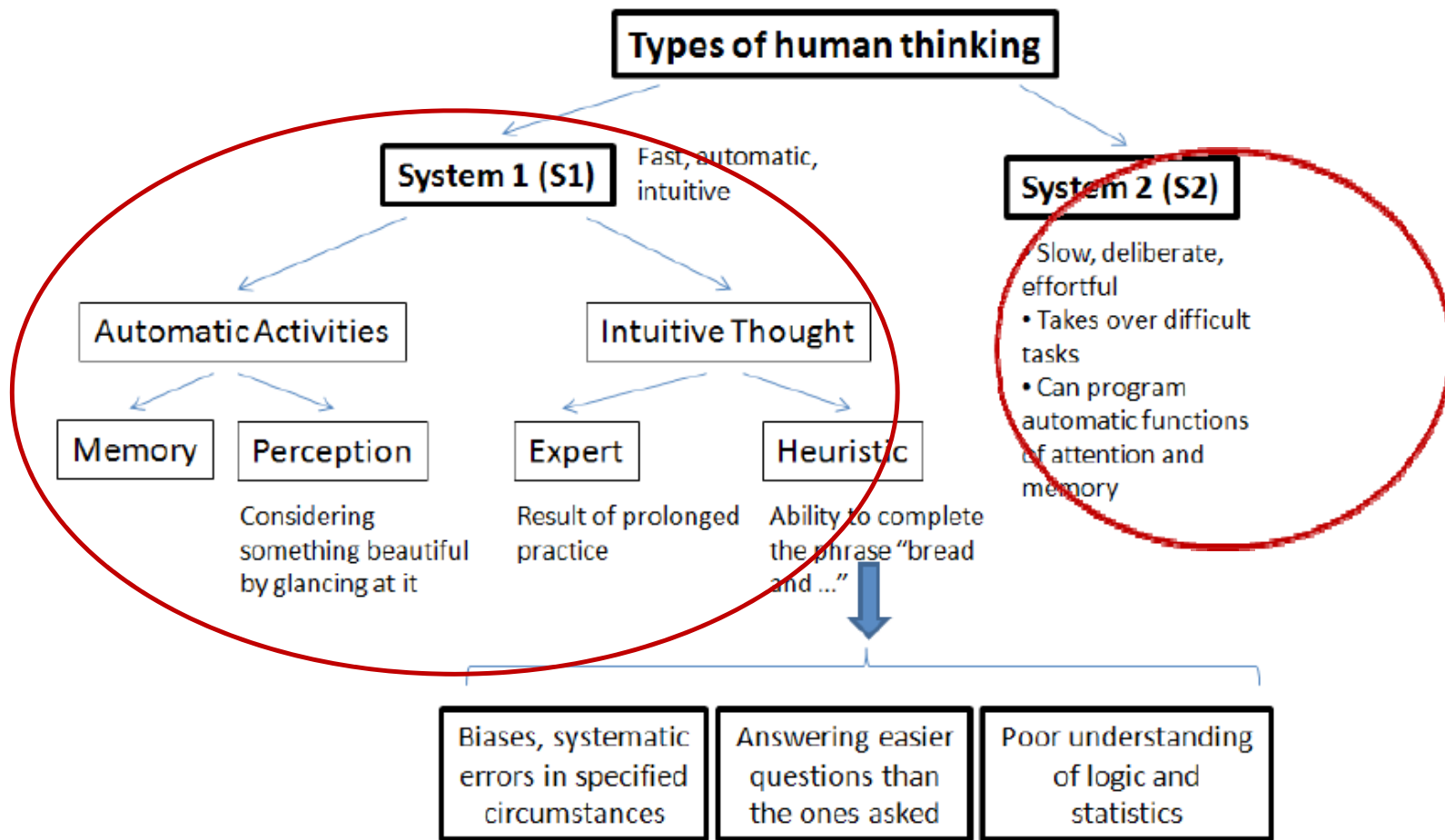Poor understanding of logic and statistics

Figure 4. Types of human thinking.

Thinking Fast & Slow

Heuristics are simple, efficient rules (filters) which people often use to form judgments and make decisions.
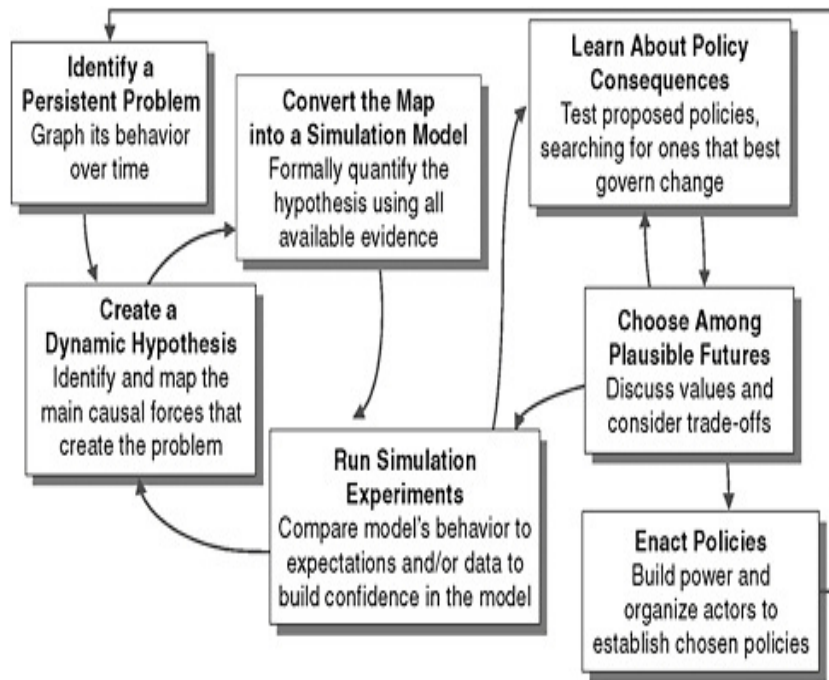
They are mental shortcuts that usually involve focusing on one aspect of a complex problem and ignoring others.

We believe they are generally true, even if they are not always true or true in every case.

Self Organize to Reduce Complexity

Public Education
- Surgeon General reports
- Public service advertising
- Media campaigns

Individual-level Intervention
- Pain management tools
- Physician intervention
- Addiction prevention

Community-level Intervention
- Community coalitions
- Dosing prohibitions
- Access restrictions

Population-level Intervention
- Laws & regulations
- Behavioral taxes
- Insurance limitations

System-level Intervention
- Epidemiological models
- System models, networks, data
- Federal campaigns

Identify a Persistent Problem
Graph its behavior over time

Create a Dynamic Hypothesis
Identify and map the main causal forces that create the problem

Convert the Map into a Simulation Model
Formally quantify the hypothesis using all available evidence

Run Simulation Experiments
Compare model's behavior to expectations and/or data to build confidence in the model

Learn About Policy Consequences
Test proposed policies, searching for ones that best govern change

Choose Among Plausible Futures
Discuss values and consider trade-offs

Enact Policies
Build power and organize actors to establish chosen policies

Human Factors & Mental Models

- **Cognitive distortions** ways that our mind convinces us of something that isn't really true. These inaccurate thoughts are usually used to reinforce negative thinking or emotions and sound rational and accurate, but really only serve to reinforce the negative.

- **Logical fallacy** is an error of inductive or deductive reasoning that stems from an error in a logical argument

- **Cognitive bias** is rooted in thought processing errors often arising from mental mistakes that cause us to think in certain ways that can lead to systematic deviations from a standard of rationality or good judgment.

Cognitive Errors

System1 - Survival

- Pattern recognition
- Overconfidence bias
- Halo effect
- False consensus effect
- Group think (bandwagon)
- Self serving attribution bias
- Sunk cost fallacy
- Cognitive dissonance reduction

System 2-Rational

- Confirmation bias
- Authority bias
- Small numbers fallacy
- Ingroup bias
- Recall bias
- Anchoring bias
- Availability bias

Parsimony: A scientific and philosophic *heuristic* that is interpreted as requiring that, if there are a number of explanations for an observed phenomena, the simplest explanation is preferred. "When you hear hoofbeats, think horses not zebras."

Merriam-Webster
@MerriamWebster

WORD OF THE DAY

MARCH 29, 2017

Occam's razor

noun | AH-kumz-RAY-zer

a favoring of the simplest explanation

m-w.com/word-of-the-day

Biases

1. (in a measurement process) <u>systematic error</u>.

2. any <u>influence or action</u> at any stage of a study that systematically distorts the findings.

3. (of a statistical estimator) the difference between the expected value of the estimator and the true parameter value.
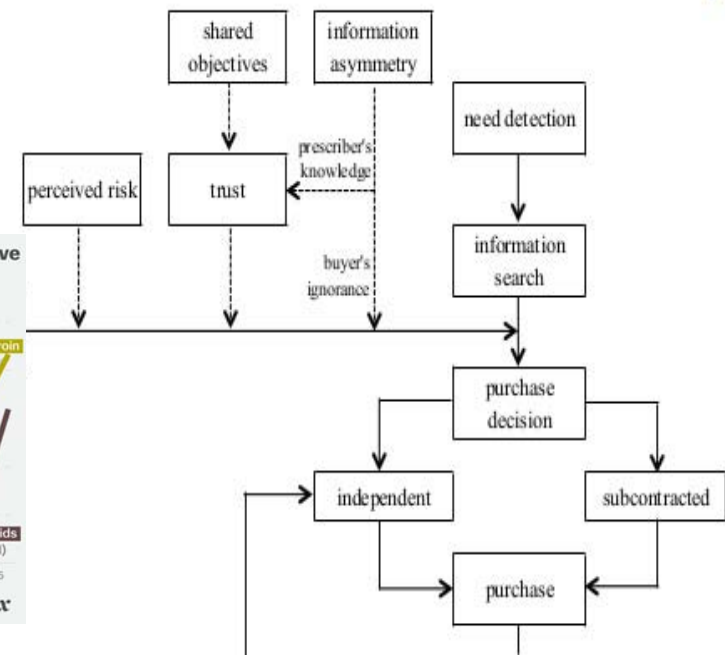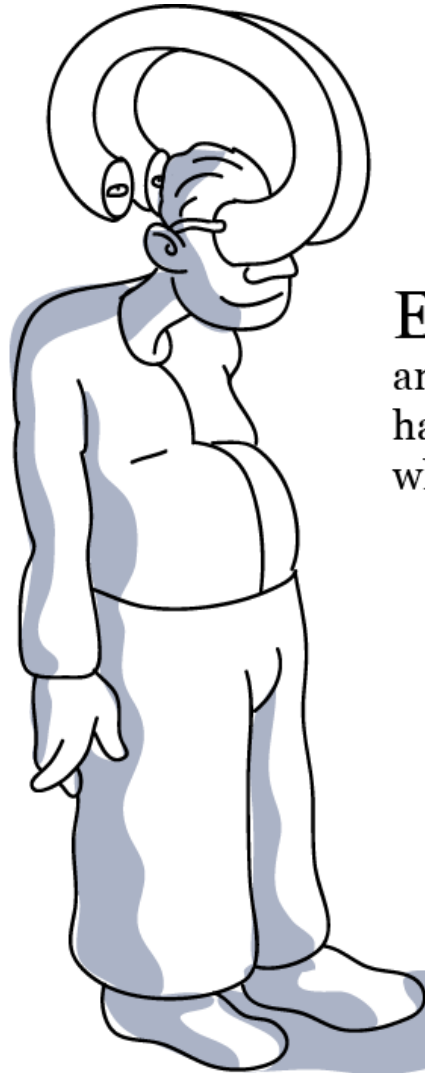
Ex.

- Anchor bias

- Confirmation bias

- Framing bias

Prescription position in the decision making process

More drug overdose deaths now involve heroin than prescription painkillers

Number of deaths

Source: CDC WONDER
Credit: Sarah Frostenson
Vox
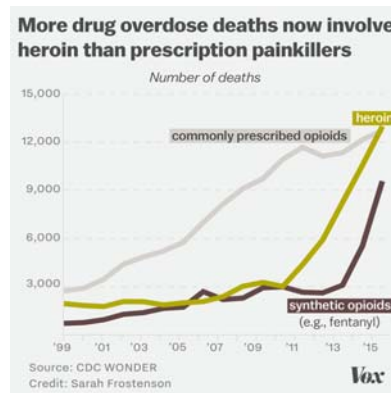
Complex Purchase Prescription: Suggestion for Definitions and for a Model

Everything you look for and all that you perceive has a way of proving whatever you believe.

JG

Confirmation bias. The tendency to search for, interpret, focus on and remember information in a way that confirms one's preconceptions.

Jeff Sessions on Marijuana: Drug is 'Only Slightly Less Awful' than Heroin

Anchor bias. The tendency to rely too heavily, or "anchor," on one trait or piece of information when making decisions.


✓ Cost
  Source
  Availability
  Safety

Framing bias. The tendency to react to judge or interpret the exact same information in distinctly different ways, depending on how it is presented to us or 'framed.'

Example: Addiction, overdoses can be reduced by reducing the number of prescriptions for opioids and the MED/dose for persons with chronic pain

FRAMING	TREATMENT A	TREATMENT B
Positive	Reducing opiate prescribing saves lives.	"A 33% change of saving 16,000 people, versus a 66% possibility of saving no one"
Negative	16,000 people will die annually of opiate overdoses.	"A 33% chance that no people will die, versus a 66% probability that all 16,000 persons will die."

***Bandwagon effect*.** A psychological phenomenon in which people do something primarily because other people are doing it, regardless of their own beliefs, which they may ignore or override; *leads to early adoption of systematic error, whereby the rate of uptake of beliefs, ideas, fads and trends increases the more that they have already been adopted by others;* *'early adopters'*
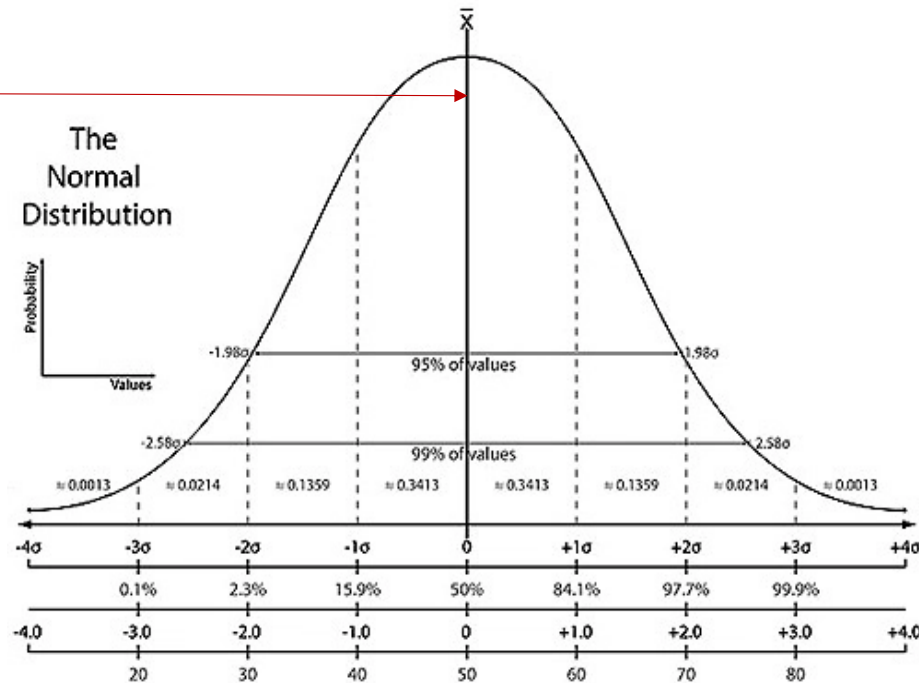

GUIDELINES
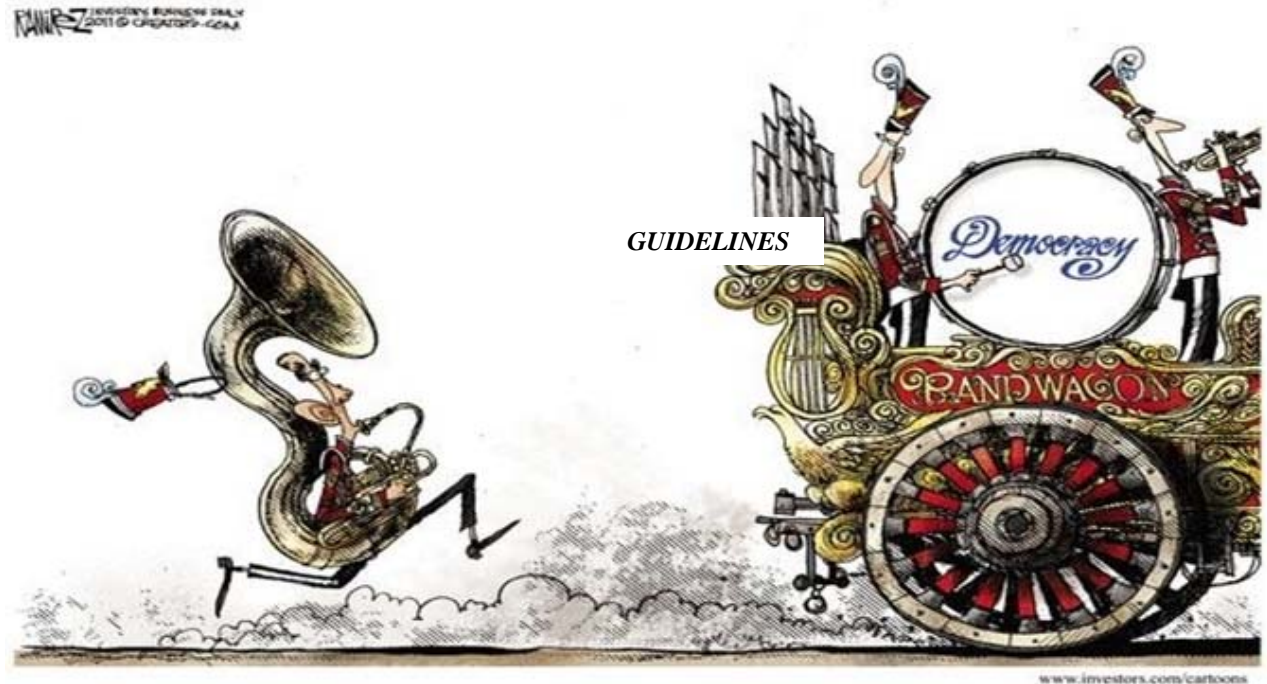
Population Health data is interpreted in accordance to statistical means, e.g., the Bell Curve

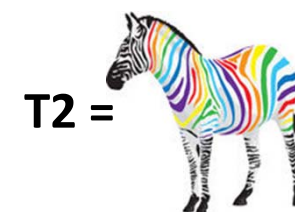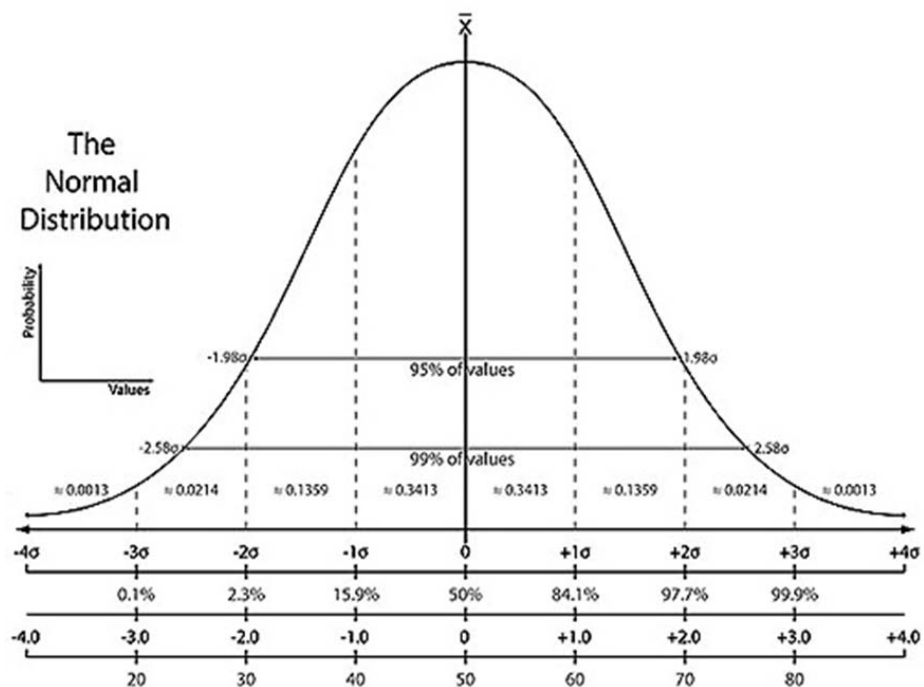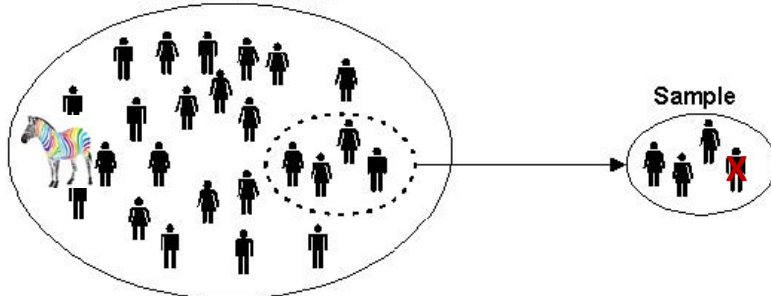*"Regression toward the mean"*-

The tendency of data to move to the middle or the mean
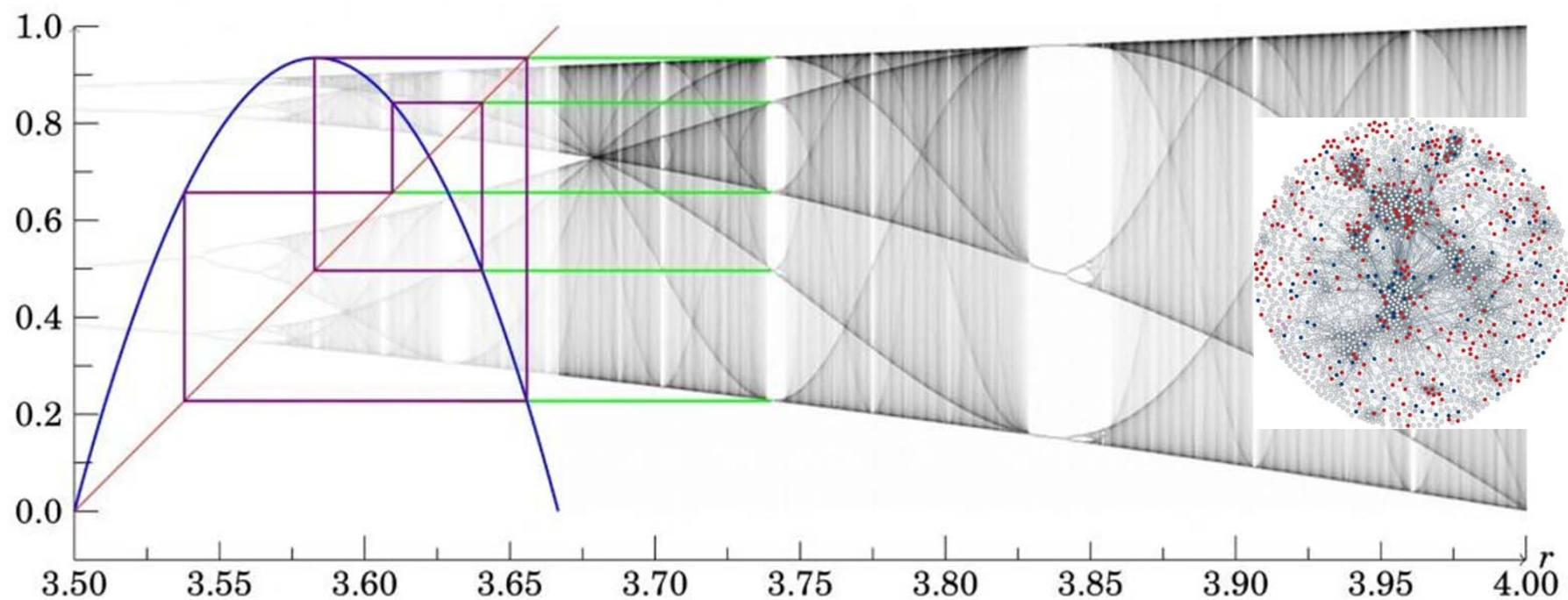
Management of "dose"

Target Population

Sample

The Normal Distribution

Probability

Values

-1.98σ   95% of values   1.98σ

-2.58σ   99% of values   2.58σ

≈0.0013   ≈0.0214   ≈0.1359   ≈0.3413   ≈0.3413   ≈0.1359   ≈0.0214   ≈0.0013

-4σ   -3σ   -2σ   -1σ   0   +1σ   +2σ   +3σ   +4σ

0.1%   2.3%   15.9%   50%   84.1%   97.7%   99.9%

-4.0   -3.0   -2.0   -1.0   0   +1.0   +2.0   +3.0   +4.0

20   30   40   50   60   70   80

T2 =

Normalization of Deviance: System2 →System1

- Institutionalization exposes newcomers to deviant behaviors, often performed by authority figures, and explains those behaviors as organizationally normative using the wrong metrics e.g. guidelines.

- Socialization, which is often mediated by a system of rewards and punishments, aims at determining whether the newcomer will or will not join the group by adopting the group's deviant behaviors, e.g. *payment systems, DEA licenses*.

- Rationalization enables system operators to convince themselves that their deviances are not only legitimate, but acceptable and perhaps even necessary, e.g. *laws, regulations*.

- **Institutionalization, socialization**, and **rationalization** work in a mutually reinforcing manner to dissolve anxiety by automatically triggering heuristics and biases as tools for decision making

John Banja, 2011
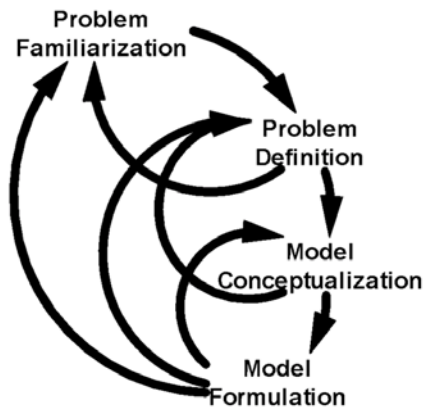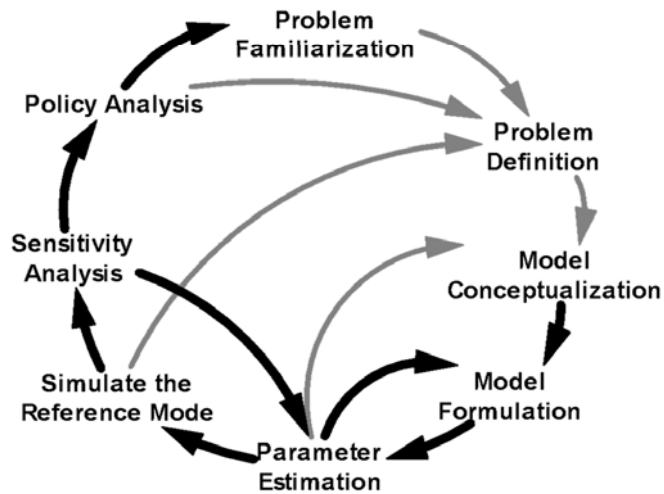
Equilibrium in the CAS is NOT the same as the Mean or Median

(a) Systems thinking exercises

(b) Systems models for policy analysis

What does a good outcome look like to you?

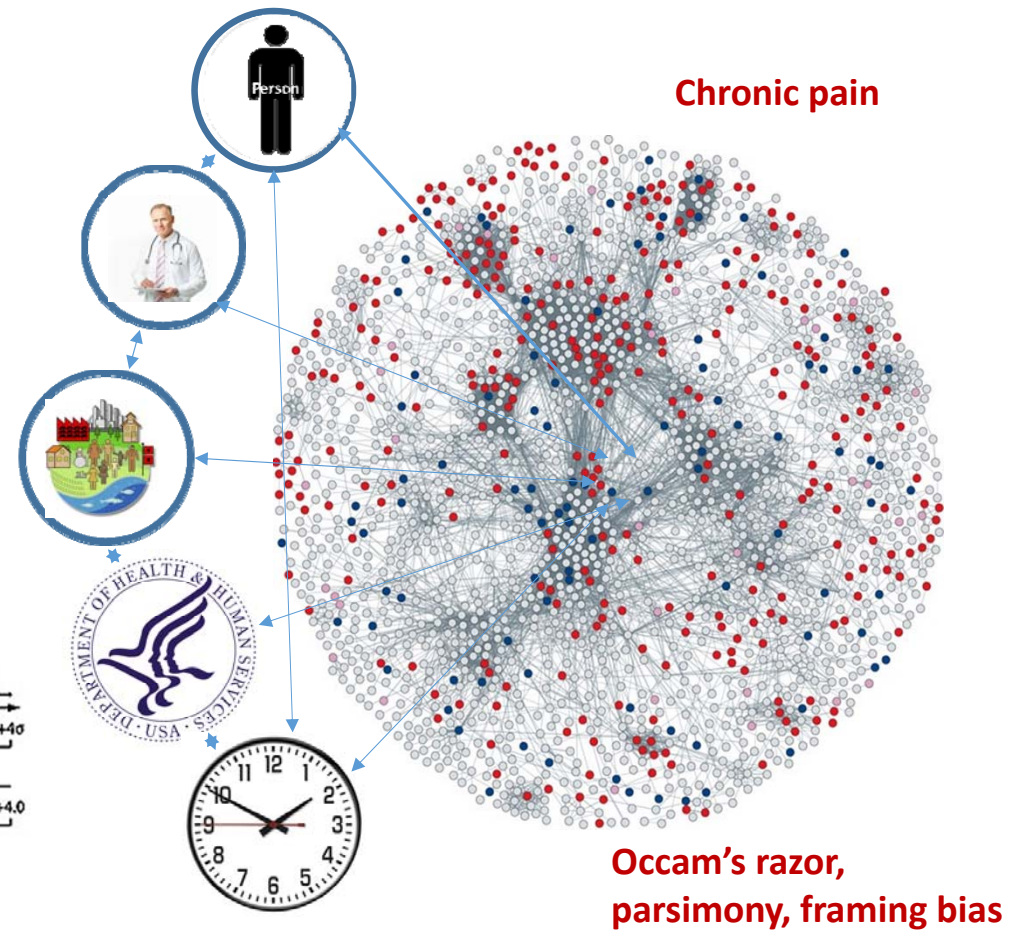## Chronic Pain Cycle
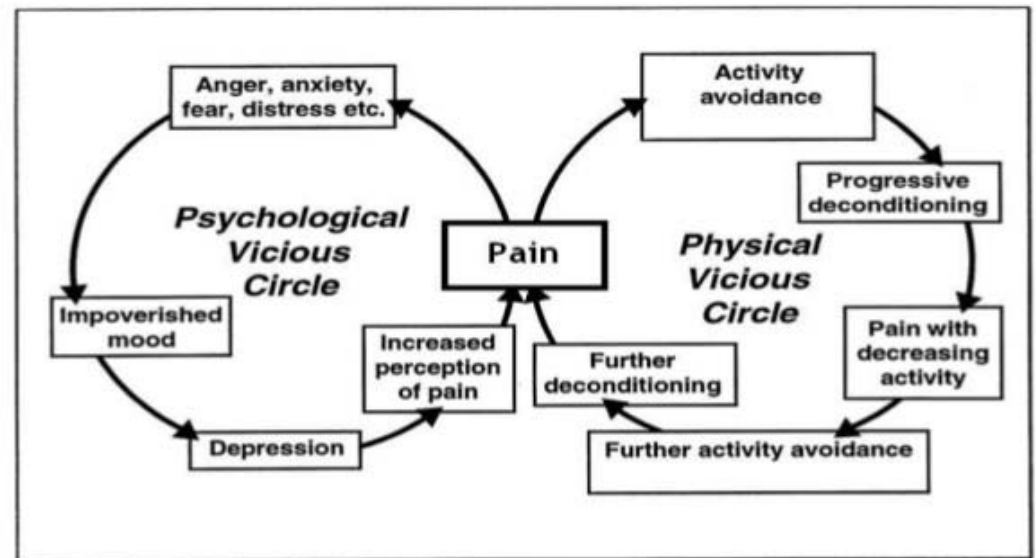
Managing our Mental Models

Acute pain
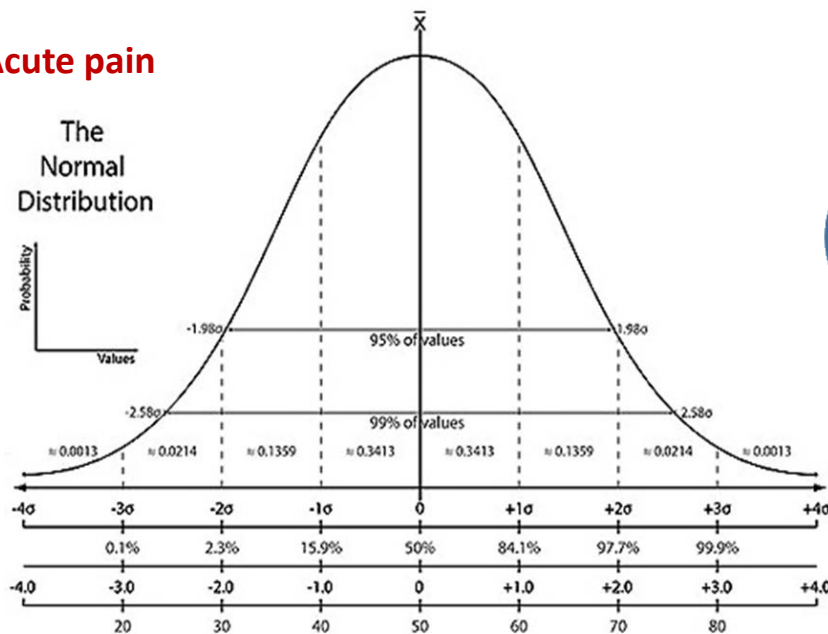
Subject to pattern and small numbers bias

Chronic pain

Occam's razor, parsimony, framing bias

characteristics of complex systems

a 'complex' system

emergent behaviour that cannot be simply inferred from the behaviour of the components

complex systems

involve:

many components

dynamically interacting and giving rise to a number of levels or scales

which exhibit

common behaviours

size scale

emergence

hierarchies

self-organization

control structures

composites
- substructure
- decomposability

a 'simple' system

chaos
fine-scale influence
large-scale behaviour

evolution

347.86395762345675988354283764

time scale

transdisciplinary concepts

across types of systems, across scales, and thus across disciplines
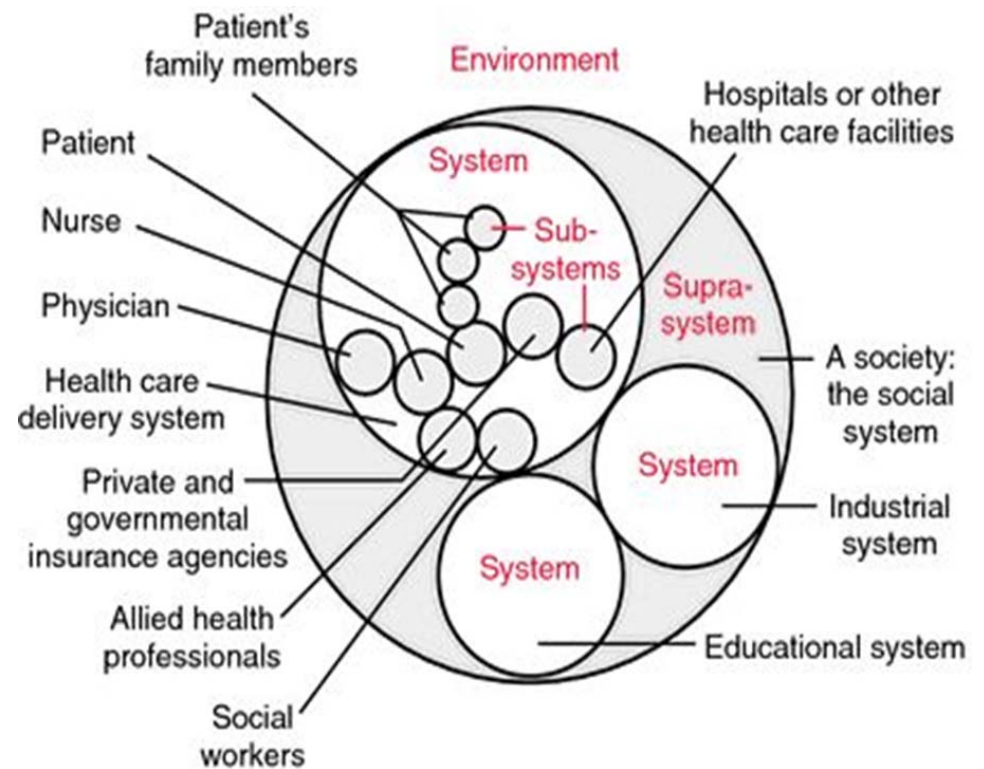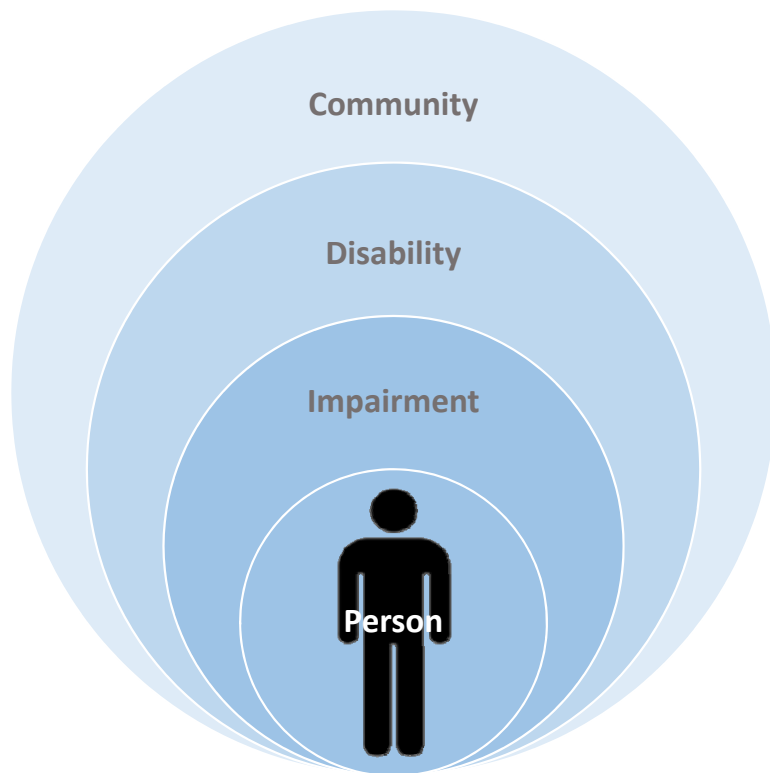
Reframing the System of Care for Consumers

Reframing Your System as a Learning System

Community Context
Environmental factors
Evaluative, Formative, Summative

Classification of Handicap
Participation restrictions
Environmental (Difference)

Classification of Disability
Activity limitations Personal
(Ordinal, Ratio)

Classification of Disease
Impairment (Descriptive, Nominal)

Quality of life

Social Indicators of Health

Resource management Priorities

Expectations Choice

Patient reports Collaboration Function

ICD-10 Identification Education

Policy, Regulation, Resource allocation, Social systems, Interaction, Participation & Exchange

Impact of disability on adaptation to community functions and demands

Influence of Disease or disorder on functioning

Person   Person

Impact
Effect
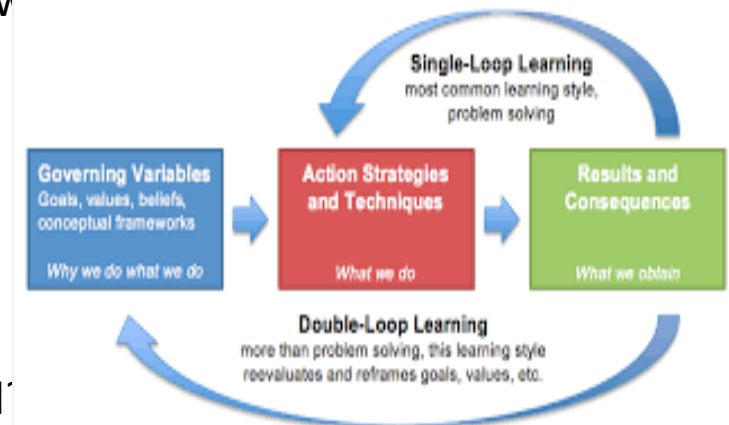
Outcomes
Processes

Results
Activity

Inputs
Informs

WHO ICF Model

System Obstacle 1.
Design your system of care for learning

1. Grasp the role of complexity and simplification of time, process, & structures

2. Look for problems associated with human factors
   - Continuous improvement practices get to error analysis & root cause
   - Conflicting expectations creates a vicious cycle of low
   - Look for stopping factors

3. Look for errors of design (reframe)
   - Are we doing the right thing?
   - Are we doing things right?
   - Measures are improperly constructed?

4. Look for errors of expectancy
   - Who are the stakeholders? Are expectations aligned
   - Address the vicious cycle of low expectations

Single-Loop Learning
most common learning style, problem solving

Governing Variables
Goals, values, beliefs, conceptual frameworks

Why we do what we do

Action Strategies and Techniques

What we do

Results and Consequences

What we obtain

Double-Loop Learning
more than problem solving, this learning style reevaluates and reframes goals, values, etc.

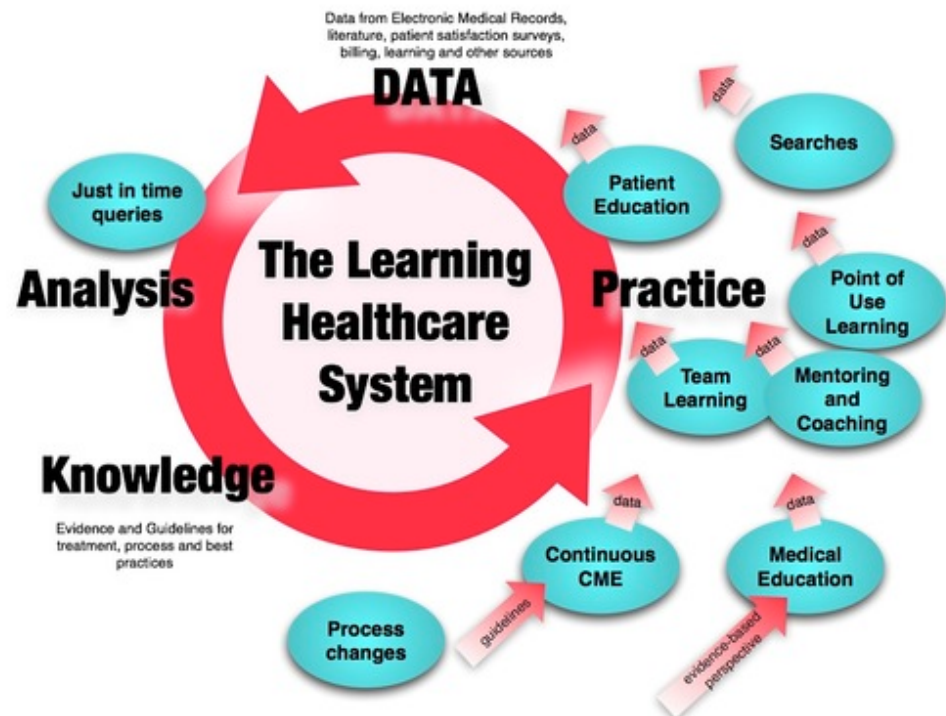# System Obstacle 2.
Cognitive errors are shared errors

- Build in adaptive balancing mechanisms – allow for multiple paths to success

- Physicians & consumers are partners in shared outcomes.

- Build in regular error analysis and procedures to test for cognitive errors

- Learn how measurement systems work in a system and design your data collection accordingly

- Measure only what matters across the influences of time and structures

- Test your theory of treatment by tracing it through the patient experience and into the community system that you share

- Satisfaction is measured in impact, not necessarily the absence of pain.
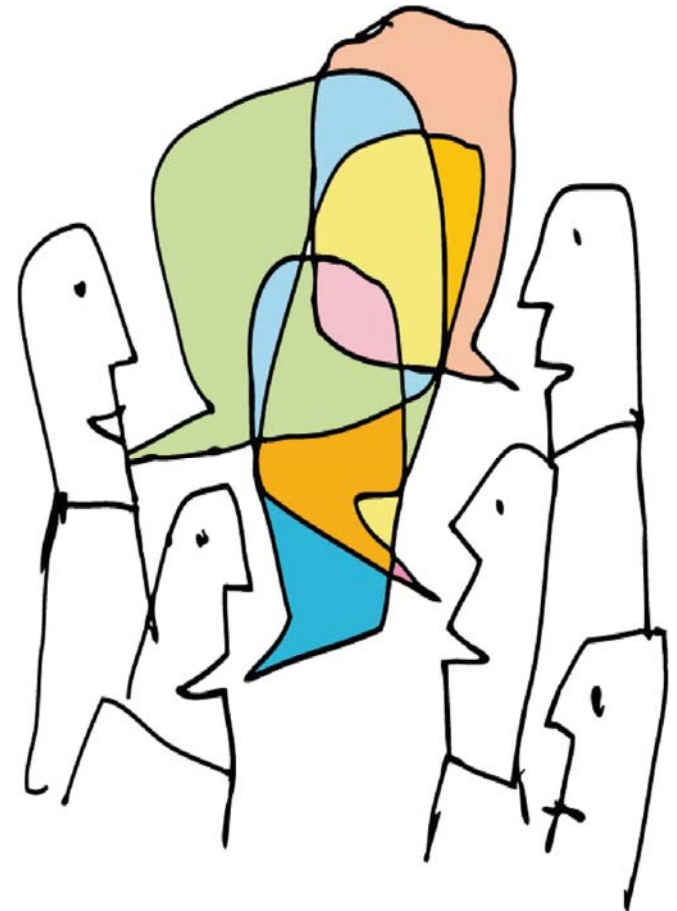
System Obstacle 3.
## Design Errors Impair Innovation, Agility, Improvement, Learning

- Manage your system, don't let it manage you
- Assist the individual and their care partners to manage their illness within the conditions of care support and community
- Work to impact, not guidelines, doses, or the calendar
- Take responsibility for collaborating in learning so that you can be an effective team members for each other

System Obstacle 4.
Re-imagine Expectations to Fit the Community Model

- Promote the use of interventions that draw on Community-based participatory research (CBPR)
- Link interventions to sustainable health promotion activities and outcomes
- Use wide systems approaches that incorporate outlier subgroups
- Encourage consumers to collaborate with community partners and networks
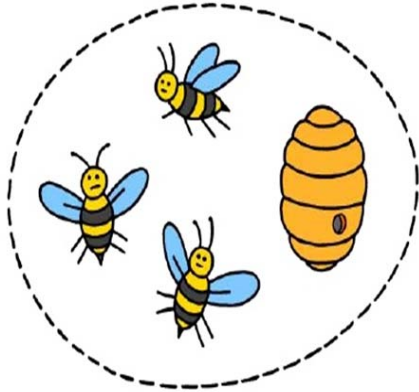- Obtain regular inputs from Family advisory panels

Complex systems are dynamic and health metrics incorporate social determinants of health
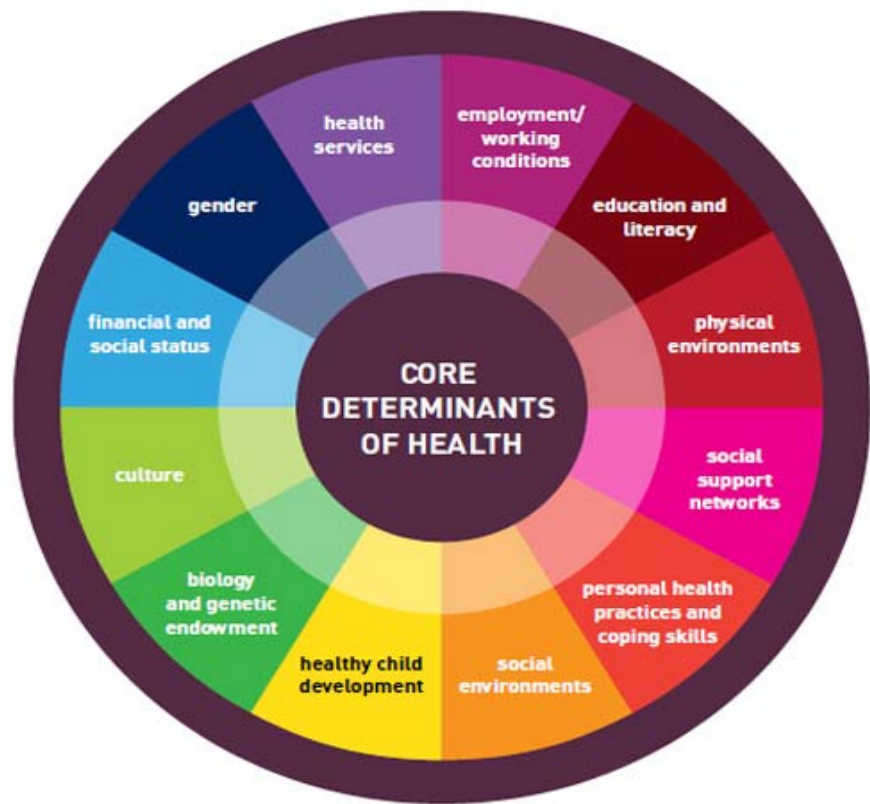
Chronic pain is everybody's business. It's not somebody else's problem.

I Congratulate RSDS.org !!

Self-organization is the
default behavior
in complex adaptive systems

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