



## **Achieving Diagnostic Excellence Through Metacognition**

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## Disclosure & Disclaimer Statement

“I do not have any relevant financial relationships with any commercial interests.”

# Three Educational Objectives

- Learning Objective 1: Identify and incorporate into clinical practice the 4 components of the skill set to achieve diagnostic excellence.
- Learning Objective 2: Define and describe metacognition as an important parameter in patient engagement.
- Learning Objective 3: Differentiate and utilize the 6 domains of the diagnostic process.

# The Act of Diagnosing

The act of diagnosis begins with human ***cognition***, and diagnostic excellence requires sound thinking.

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Critical Thinking  
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VIEWPOINT

DIAGNOSTIC EXCELLENCE

The Rational Diagnostician  
and Achieving Diagnostic Excellence

JAMA Published online January 7, 2022

# Fear Is Showing You Something (1.31.22)

“The very fact that I felt a moment’s qualm about inviting him because of his color made me ashamed of myself and made me hasten to send the invitation”

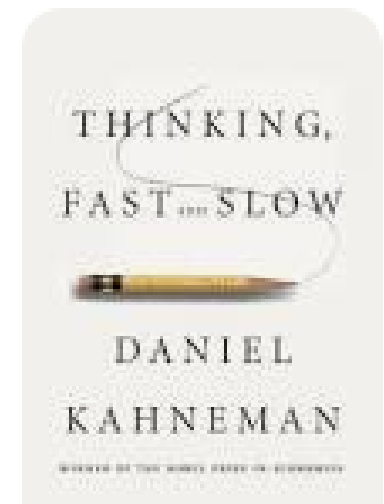
Theodore Roosevelt on inviting Booker T Washington to the White House in 1901.

Ryan Holiday “Courage is Calling”

# Knowledge Base v. Thinking Skill

Thinking, Fast and Slow is a 2011 book by psychologist Daniel Kahneman. The book's main thesis is that of a dichotomy between two modes of thought: **"System 1" is fast, instinctive and emotional; "System 2" is slower, more deliberative, and more logical.**

**Author:** Daniel Kahneman

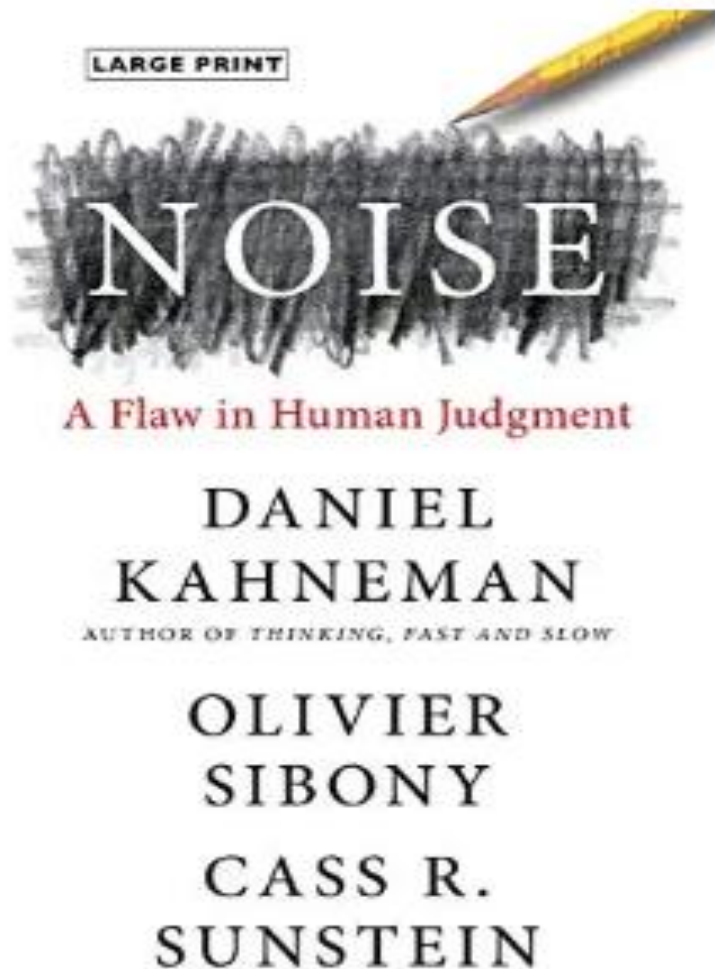


## The Skill Set to:

- “**A**cquire accurate and complete information”
- “**D**istill important clinical signals from the noise of irrelevant or distracting elements”
- “**I**nterpret data” and
- “**S**ynthesize the parts into a cohesive whole”

is complex and deserves study.

# Noise: A Flaw in Human Judgment





# JUDGE

- A **judge** is a person who presides over court proceedings, either alone or as a part of a panel of judges. A judge hears all the witnesses and any other evidence presented by the barristers or solicitors of the case, assesses the credibility and arguments of the parties, and then issues a ruling in the case based on their **interpretation of the law and their own personal judgment**. A judge is expected to conduct the trial impartially and, typically, in an open court.

# Judge's Sentencing

1. Loss by a local sports team
2. Outside Temperature
3. Defendant's birthday
4. Lunchtime
5. Looks

# Noise In Medicine

- Inter-rater reliability
  - Kappa Value of 1 equals perfect agreement
  - Kappa Value of 0 equals darts thrown at a board of diagnosis
- Poor to slight to moderate to good
  - Stages of kidney disease by nephrologists
  - Cancerous breast lesion by pathologist
  - Melanoma by pathologist
  - Mammograms
    - False negative
    - False positive
  - Depression by Psychiatrists

# Metacognition

- Metacognition is, put simply, thinking about one's thinking.
- More precisely, it refers to the processes used to plan, monitor, and assess one's understanding and performance.
- Metacognition includes a critical awareness of a) one's thinking and learning and b) oneself as a thinker and learner.
- Research by Dunning, Johnson, Ehrlinger, and Kruger on "Why People Fail to Recognize Their Own Incompetence" (2003). They found that "people tend to be blissfully unaware of their incompetence," lacking "insight about deficiencies in their intellectual and social skills."

<https://cft.vanderbilt.edu/guides-sub-pages/metacognition/>

# Metacognitive Refinement of Critical Thinking

- “We maintain that self-reflective and metacognitive refinement of critical thinking should not be construed as optional but rather should be considered an integral part of medical education, a codified tenet of professionalism, and by extension, a moral and professional duty.”

## **The Ethical Imperative to Think about Thinking**

**Diagnostics, Metacognition, and Medical Professionalism**

Published online by Cambridge University Press: 17 July 2014

MEREDITH STARK and JOSEPH J. FINS

# Among the Heuristics that can introduce Cognitive Biases are:

## **Availability:**

Judgment based on what is easiest to bring to mind.

## **Premature closure:**

Judgment reached too quickly.

## **Anchoring:**

When you write a diagnosis in the chart.

# Ambient Bias

- Season
- Lighting
- Sound
- Temperature
- CO

## 6 DOMAINS OF THE DIAGNOSTIC PROCESS

1. The clinician's individual characteristics (Sex Age Experience)
2. Individual cognitive processes. (we think and learn differently)
3. Factors that could adversely affect individual homeostasis.
4. Ergonomic and other characteristics of the workplace. (Ambient Bias)
5. Features of the particular disease, its manifestations, presentation and context.
6. Characteristics of the patient and their presentation of the disease.



**All of these factors (6 Domains) and their interactions are capable of generating noise that may interfere with the detection of the diagnostic symbol.**



# Approaches to Improve Diagnostic Judgement:

1. Establish awareness of how cognition works.
2. Coach critical thinking.
3. Make the work environment more conducive to sound thinking.
4. Circumvent Type 1 distortion. (Speed errors)
5. Expand individual expertise.
6. Promote team cognition.
7. Mitigate judgement and decision-making failure.

# Unique Competencies



Academic Consortium on  
Criminal Justice Health

- Attitudinal (treat as patient, not inmate)
- People and Procedure Skills
- Careful word choice in speech and documentation
- Be confident
- Managing difficult patients
- Avoid being set up
- Teamwork
- Medical Knowledge (infectious disease, SUD, chronic, MH, msk)
- Corrections and security dynamics

# Sign: New York Fire Dept Training Academy

- “Let No Man’s Ghost Come Back and Say My Training Let Me Down”
- Frank Shamrock
- Kirk Hammett
- Atul Gawande “Better” and “Checklist Manifesto”

# Sign: New York Fire Dept Training Academy

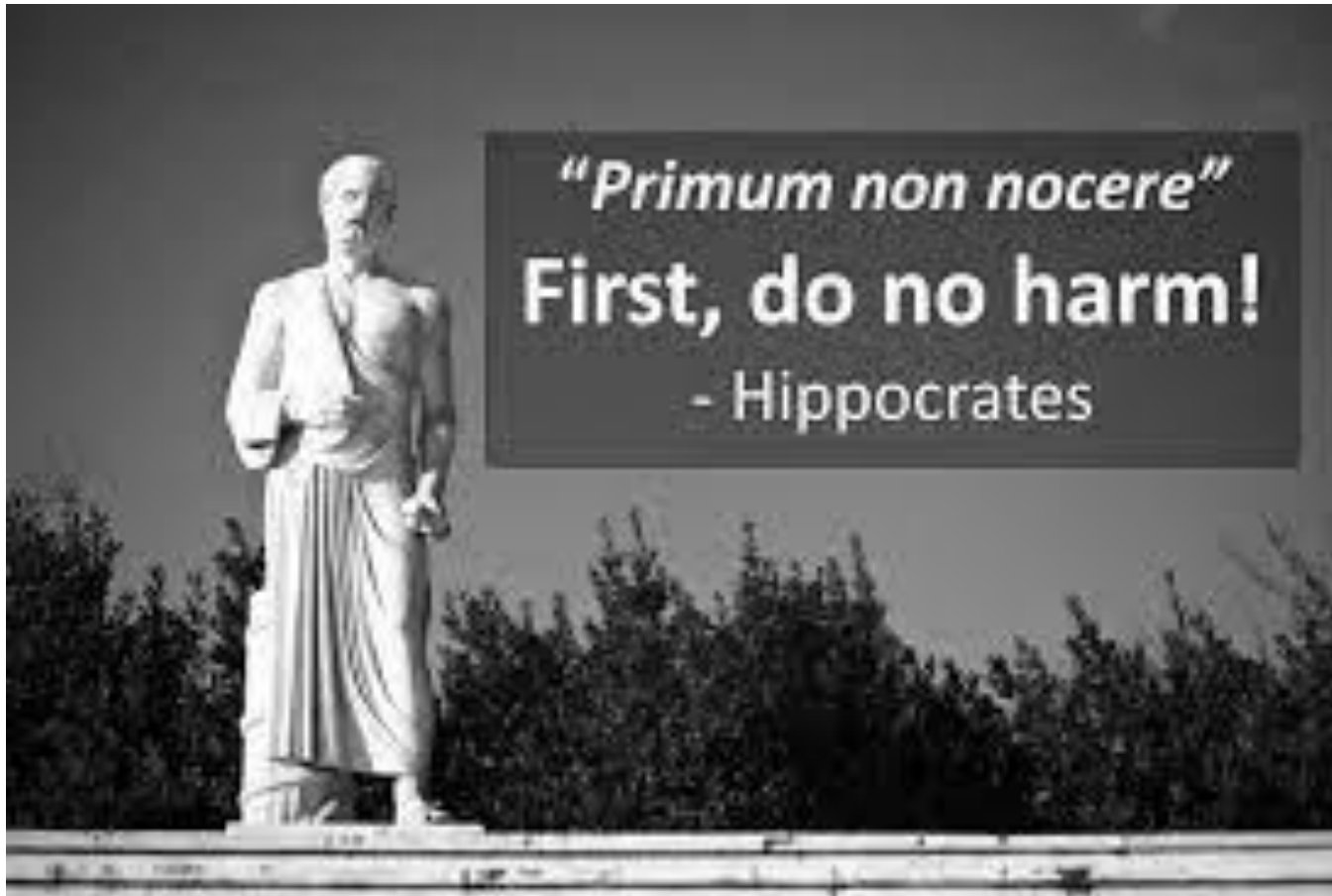
- “Let No Man’s Ghost Come Back and Say My Training Let Me Down”
- Frank Shamrock Plus/Lesser/Equal
- Kirk Hammett
- Atul Gawande “Better” “Checklist Manifesto” **Coach**

Frank Shamrock



Metallica Launches Online MasterClass ...  
**io nope and neaung.**

# “Primum Non Nocere”



# “First, Do Less Harm: Confronting the Inconvenient Problems of Patient Safety”

- Published 10 years ago
- Highlights workplace issues that negatively affect safety: including sleeplessness, excessive workloads, and lack of teamwork between physicians and other health care staff.



**STICKS AND STONES  
MAY BREAK MY  
BONES, BUT WORDS  
WILL NEVER HURT ME.**

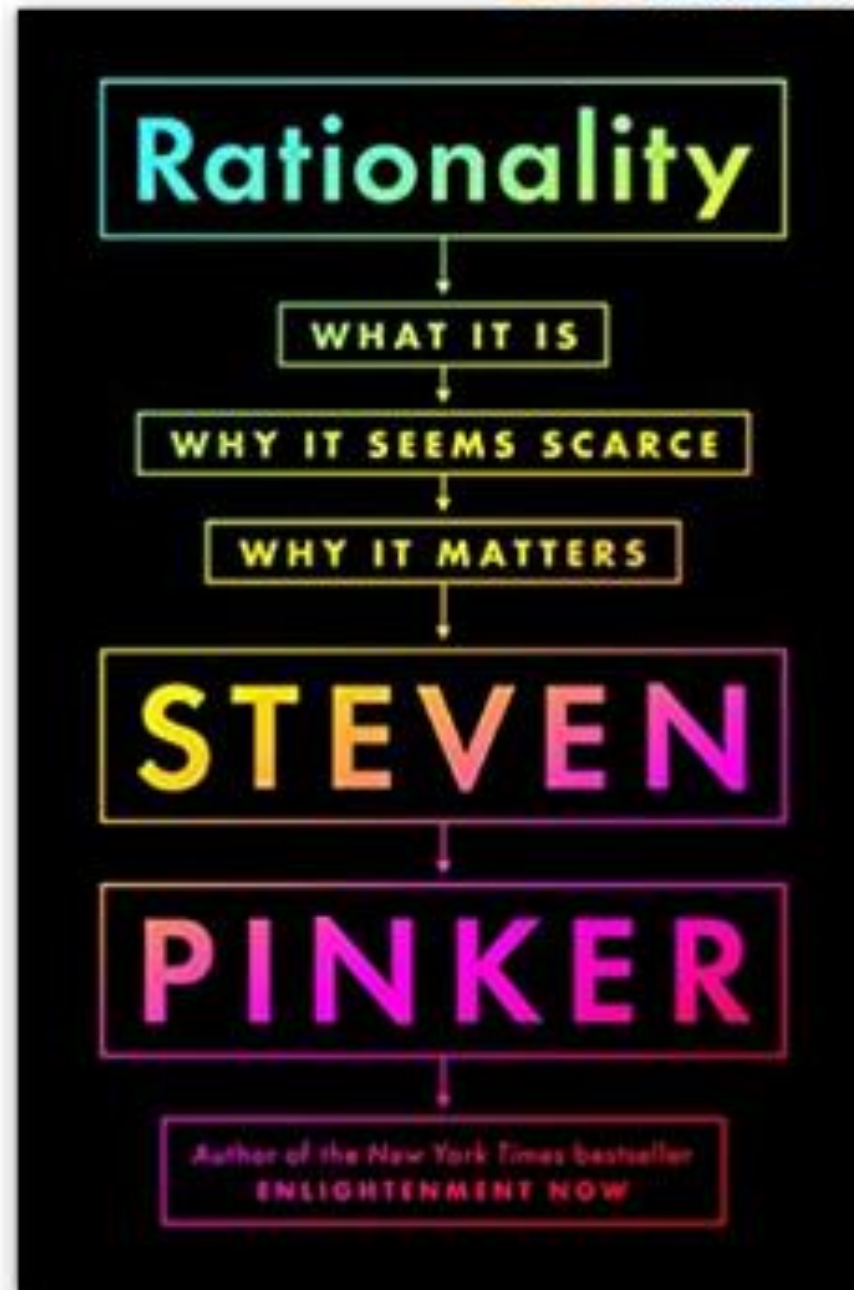
Proverb

[PICTURE QUOTES . com](http://picturequotes.com)

Sticks and stones  
may break bones,  
but words can  
shatter souls.  
Words matter.  
Choose wisely.



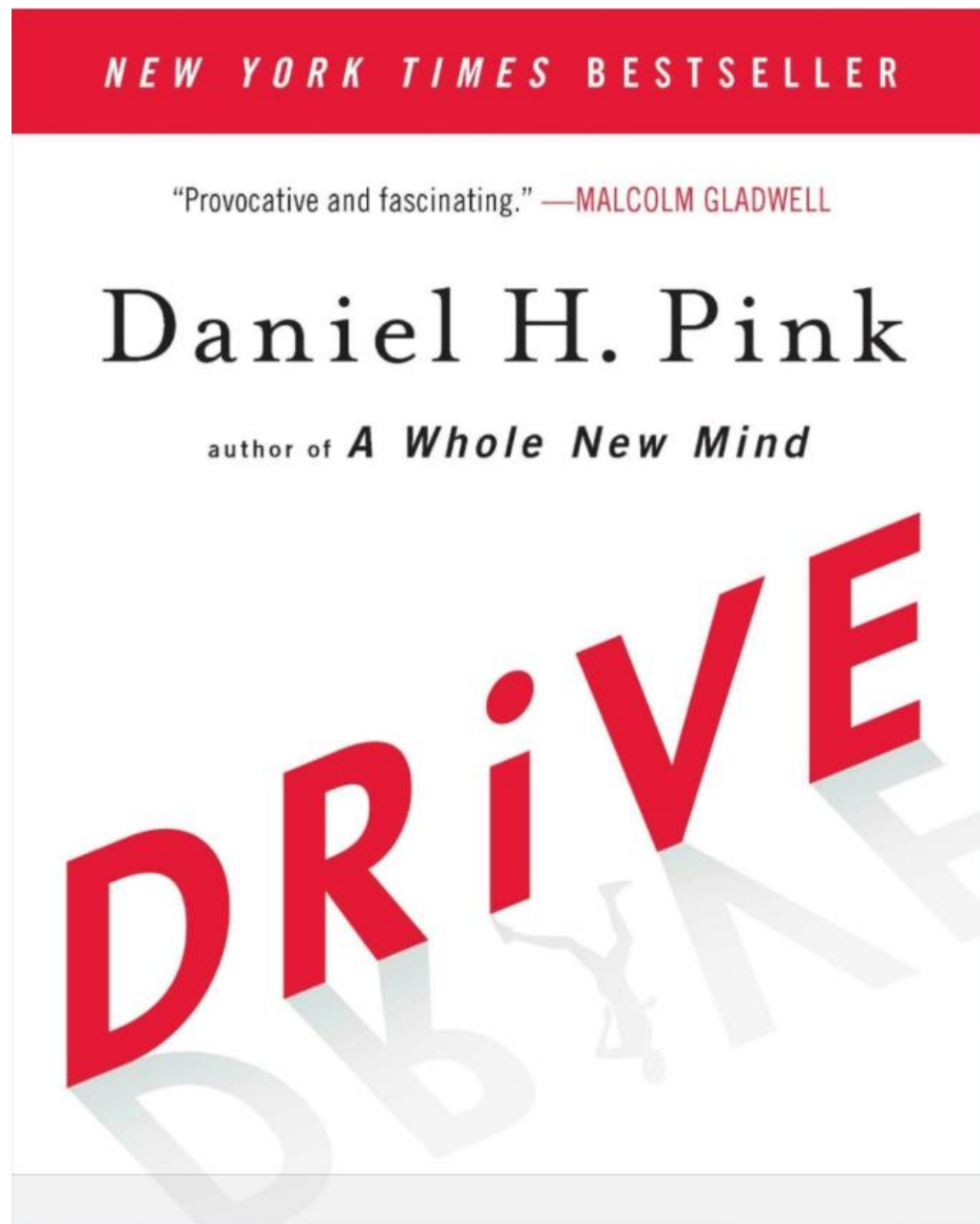
# Rationality



# Rationality

- Biases distort our cognitive system and prevent us from making rational decisions.
- Motivated reasoning describes how we let our beliefs mold our perception of the world, ensuring that we see things as we are, not as they are.
- Instead of using social media as the scapegoat for all that is wrong in the world, we should examine the principles guiding our beliefs.

# Drive 4 T's



# Clinical Inertia and Deprescribing/De-diagnosing

- **Medical culture and clinical inertia** — Medical culture has been highlighted as a barrier to deprescribing, including a historically **clinician-centric culture where prescribing** is a central part of professional identity.
- Additionally, **starting** a medication is familiar and considered a positive action (ie, doing something to help the patient), while deprescribing is less familiar and may be considered a lower priority or as withdrawing care.
- Clinical inertia (continuation along a path of treatment without re-evaluation or staying with the “status quo”) is also common in medical culture and can **discourage deprescribing**.

UpToDate: Accessed 10.10.22 Literature review current through: **Sep 2022**.  
This topic last updated: **Apr 22, 2021**.

# Clinical Inertia and Deprescribing/De-Diagnosing

- **Strategies** to combat clinical inertia and cultural norms and increase the normality of deprescribing include:
  - Equally considering the benefits and harms of continuation against the benefits and harms of **discontinuation**.
  - Attending deprescribing-related continuing **education** opportunities and advocating for greater undergraduate teaching of deprescribing.
  - **Discussing** deprescribing activities with **colleagues**, including success stories.

# Deprescribing/De-Diagnosing

- Deprescribing is an essential part of good prescribing and is inherently linked to related activities, such as medication reconciliation, to ensure safe and effective use of medications.
- This process requires attention, time, and in many cases special skills and knowledge.
- This includes technical knowledge, such as optimal down-titration schedules, as well as competencies in shared decision-making, communication, and managing health systems in a medical culture that historically has been more oriented toward adding medications than stopping them

# Multidisciplinary

- One study, [published](#) in *BMJ*, found that after introducing multidisciplinary oncology care in hospitals in Scotland, breast cancer mortality was 18% lower among patients who received the team-based intervention.
- A 2019 analysis, for instance, indicated that the 5-year survival rate was 15.6% higher among cases in well-organized multidisciplinary tumor groups but almost 20% lower in disorganized groups compared with no tumor board.

# Conclusion: Execution, Curiosity and Humility

- "Execution of the plan is how we get to good outcomes regardless of the brilliance of the plan, the talent of the team, or the difficulty of the task."
- "A spirit of curiosity" is critical to a high-functioning tumor board, said Kamal. "It's important to remember that you're there to learn from colleagues."
- Plus, "a dose of humility can help," McClelland said.