Disclosure

- I have no financial disclosures relevant to this presentation
- Unrelated disclosures:
- Stipend for Executive Editor, Practical Radiation Oncology
- Stipend for membership Radiation Oncology Healthcare Advisory Council, analysis arm of Radiation Oncology Incident Learning System
- Both total <$3000


DON'T
BELIEVE
EVERYTHING
YOU
THINK

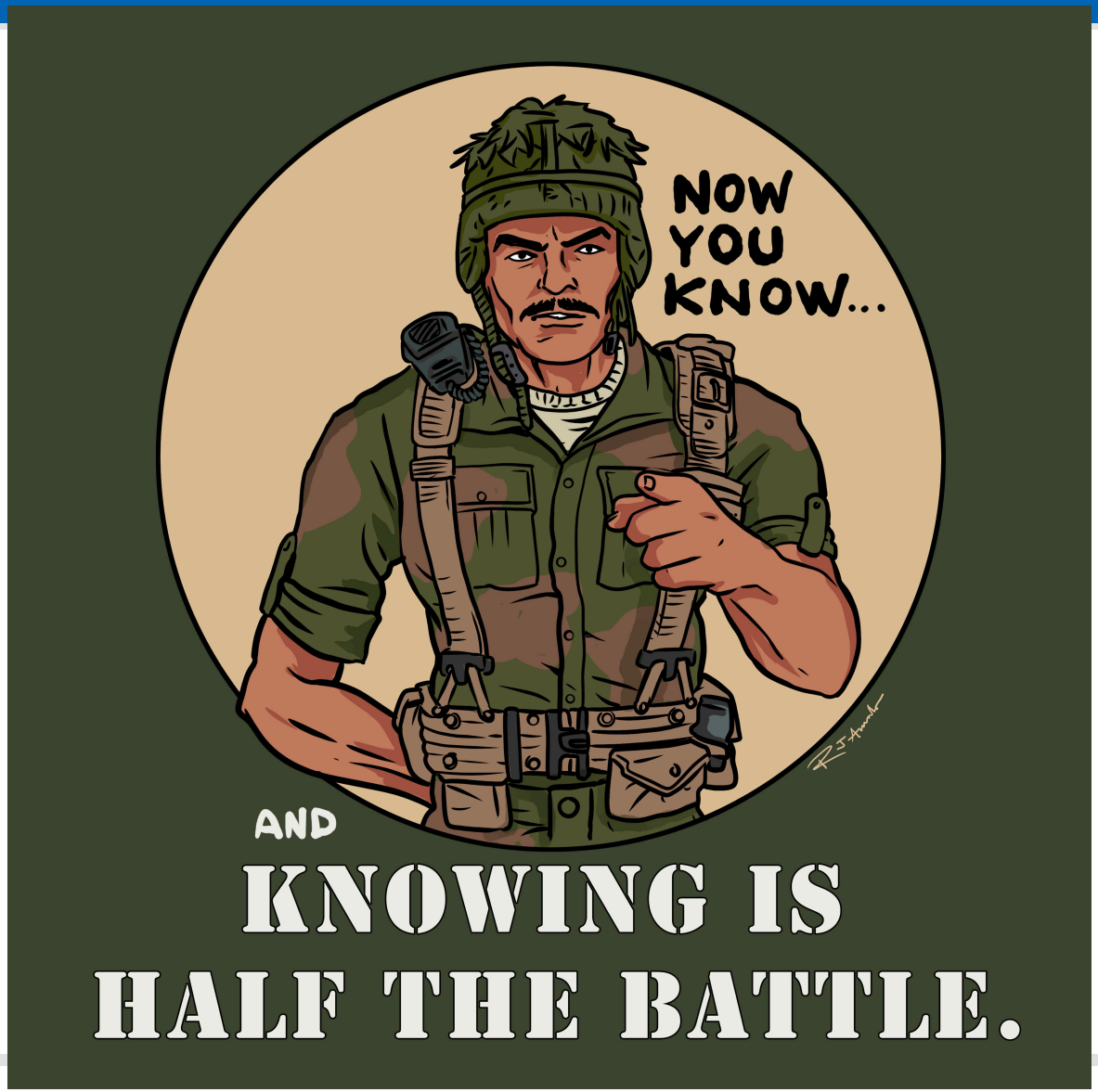
Cognitive Debiasing

- Techniques to limit the impact of bias on your decision making
- Cognitive forcing strategies

How do we Address Bias?

- Limit predisposing conditions as discussed:
- optimize workflow/ health information technology
- Eat
- Avoid fatigue (sleep!)
- Avoid cognitive overload/repetitive decision making if possible
- Be aware when you are vulnerable (allostatic overload!)

G.I. Joe Fallacy



nature human behaviour

ARTICLES

https://doi.org/10.1038/s41562-019-0686-3

Committees with implicit biases promote fewer women when they do not believe gender bias exists

Isabelle Régner[1*], Catherine Thinus-Blanc[1], Agnès Netter[2], Toni Schmader[3,5] and Pascal Huguet[4,5*]

Whether gender bias contributes to women's under-representation in scientific fields is still controversial. Past research is limited by relying on explicit questionnaire ratings in mock-hiring scenarios, thereby ignoring the potential role of implicit gender bias in the real world. We examine the interactive effect of explicit and implicit gender biases on promotion decisions made by scientific evaluation committees representing the whole scientific spectrum in the course of an annual nationwide competition for elite research positions. Findings reveal that committees with strong implicit gender biases promoted fewer women at year 2 (when committees were not reminded of the study) relative to year 1 (when the study was announced) if those committees did not explicitly believe that external barriers hold women back. When committees believed that women face external barriers, implicit biases did not predict selecting more men over women. This finding highlights the importance of educating evaluative committees about gender biases.

- https://implicit.harvard.edu/implicit/takeatest.html

Religion IAT

Skin-tone IAT

Gender-Science IAT

Weapons IAT

Weight IAT

Presidents IAT

Transgender IAT

Race IAT

Asian IAT

Sexuality IAT

Age IAT

Arab-Muslim IAT

Native IAT

Gender-Career IAT

Disability IAT

- Committees with a stronger science=male association exhibited the largest decrease in selecting women (a lower log-transformed AI ratio) if those committees also had weaker beliefs that external barriers hold women back
- Implicit gender bias was unrelated to selection decisions in those comm whose members believed that ge disparities in science can be due external barriers

Knowing is part of it!

External resources to cognitively unload

- Review practice guidelines (ASTRO, NCCN)
- Access decision support techniques (review up to date work up for _____ symptom)

External resources to cognitively unload

- Systematic Approach:

Figure 1. Example of a perceptual error. Anteroposterior radiograph of the chest of a 4-year-old boy. The presence of a swallowed coin within the esophagus was missed twice by a skilled pediatric radiologist. The clinical history provided did not mention the possibility of a swallowed coin.

External resources to cognitively unload

- **Contours:** Review target volumes and OARS
- **Beam Arrangements/Fields:** Appropriate and reasonable
- **Coverage:** Evaluate on graphic plan and DVH
- **Heterogeneity/Hot Spots:** Value and location
- **Organs at Risk:** Review specified constraints, corresponding isodose lines on plan, and DVH
- **Prescription:** Total dose, dose per fraction, and image guidance

Cognitive unloading: checklists

TAC 289.227 Compliance Checklist

289.227	Requirements for Fluoroscopic X-Ray System	Status
m1A II	X-ray production must be prohibited until barrier (usually imaging system) is in place	Pass
m1C III	Means must be provided for stepless adjustment of collimators	Pass
m1C III	Minimum field size at maximum SID is < 5 x 5 cm for collimators	Pass
m2	Deadman type foot or hand switch is required for X-ray activation	Pass
m3B II III	**High level controls:**	Pass
	Special means must be used for activation	Pass
	Continuous manual activation is required	Pass
	Continuous audible signal must be produced	Pass
m3D	Medical physicist must perform periodic measurement of entrance exposure rate	Pass
m3D I	Entrance exposure rates must be tested annually and after repair	FYI
m3D II	Results must be posted where fluoroscopist can reference them during fluoroscopy	Pass
	Results of previous fluoroscopy inspection are posted.	Yes
	Results of this inspection are posted.	Yes
m5	kVp/mA must be continuously indicated at control or fluoroscopist's position	Pass
	Minimum Source to Skin Distance:	
m6A I	38 cm for stationary units	NA
m6A II	30 cm for mobile units	Pass
m6B	20 cm for units used for specific surgical applications	NA
m7A I; m7B III II	Means shall be provided to preset the cumulative on-time of the fluoroscope to 5 min or less	Pass
m7A II; m7B IV	When 5 minutes expire an audible signal must exist for 2 seconds until auto reset	Pass
m8A	Scatter radiation drapes of > 0.25 Pb must be in place on column console except when not possible	NA
m8B I	When m8A is not possible, personnel aprons must be 0.35 mm Pb equivalent	FYI
m8B II	When m8A is not possible, the field size must be minimized by collimation	FYI
m8B III	When m8A is not possible, operating & safety procedures must state this and personnel to respond appropriately	FYI

Make sure you don’t shut down prematurely!

- Rule of three- When considering a diagnosis or treatment option, force yourself to fully consider 3 options.

Make sure you don’t shut down prematurely!

- Rule out worst case scenario: make sure a serious (but perhaps unlikely) possibility is considered

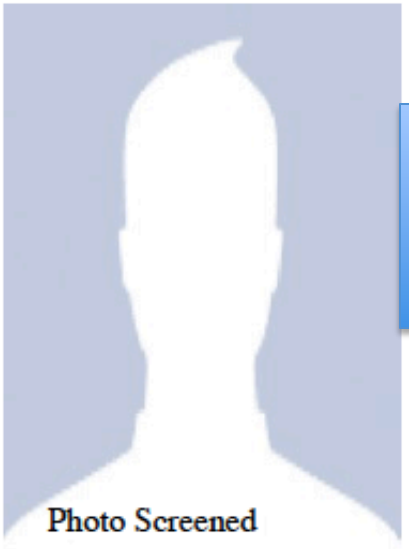
Make sure you don’t shut down prematurely!

- Consider the opposite strategy: Reverse what you think, and go over the data and see if it stills fits as well as you think it does.

Make sure you don't shut down prematurely!

- Exposure Control: Limit exposure to information that might influence judgment before your impression is formed

Advanced (Radiation-Oncology, 1089430A0 (Advanced))



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Participating in the NRMP Match:
Yes
Participating as a Couple in NRMP:
No

Citizenship: U.S. Citizen

Most Recent Residency: None

Make sure you don’t shut down prematurely!

- Premortem/prospective hindsight: Pretend a bad outcome has happened. Now, look back at your decision, and try to identify the tell tale signs that would indicate you were on the wrong path

Other strategies

- For affective bias: Acknowledge your bias to yourself. Then, run the case by a colleague or two. Give them just the facts, and leave out the rest to gauge your clinical judgment
- Summarize aloud: list the basic tenets of the case to its minimum components, and see if this makes the path more clear.

RED TEAMS!


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HOT STUFF
ANDERSON
"OK, let me play advocate for a minute..."

RED TEAMS!

- Try it yourself: When preparing for your next presentation, instead of asking (yourself, your helpers) “Is my presentation ok,” ask, “What can you find wrong with my presentation?”

- Not advocating indecision, or lack of confidence, but rather that one take a moment to focus on flaws of one’s choices before going ahead with those choices.

- Disconfirmation and considering the opposite often takes less time than the confirmation, basking in one’s own glory, listening to “yes-men” and “preaching to the choir” that otherwise occurs..

Other strategies

- Recalibration: When bias is anticipated, the decision maker may recalibrate

Other strategies

- Group decision strategy- Crowd Wisdom: Chart Rounds!

Conclusions:

- Bias is everywhere!

- Be self aware
- Cognitively unload
- When all else fails, consider the opposite!

Thank you!!