UNCONSCIOUS BIAS IN MEDICINE
Part 1 of 2

David Lee Gordon, M.D., FAAN, FANA, FAHA
Professor and Chair
Department of Neurology
University of Oklahoma Health Sciences Center

OU Neurology

UNCONSCIOUS BIAS IN MEDICINE 1
Learning Objectives

Upon completion of this session, participants will improve their competence and performance by being able to:

- Relate examples in the literature of physician biases contributing to healthcare disparities
- Define cognitive miser, heuristic, somatic marker, unconscious bias, & implicit bias

OU Neurology

UNCONSCOUS BIAS IN MEDICINE
A Pervasive—& Current—Contributor to Disparities

- Authors of a 2017 systematic review identified 42 articles published between 2003 & 2013 that reported implicit bias of healthcare professionals in the diagnosis or treatment of patients who are:
  - Women
  - Overweight
  - Elderly
  - Black
  - Latin
  - Poor
  - IV drug users
  - Diagnosed with AIDS
  - Mentally ill
  - Disabled
  - Brain injured and contributed to their injury

These studies provide compelling evidence that the attitudes & behavior of health professionals contribute to healthcare disparities

FitzGerald C & Hurst S. BMC Medical Ethics 2017;18:19

OU Neurology

EXPLICIT BIAS VS. IMPLICIT BIAS

- Explicit bias = attitudes and beliefs we have about a person or group on a conscious level, often as a result of a perceived threat

  https://perception.org/research/explicit-bias/

- Implicit bias = implicit social cognition = attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner

  http://kirwaninstitute.osu.edu/research/understanding-implicit-bias/

Implicit bias is a subset of unconscious bias related to human/social factors

OU Neurology

IMPLICIT ASSOCIATION TEST
Standardized Assessment of Implicit Bias

- Developed by Anthony Greenwald from U. of Washington

  Greenwald AG et al. J Personality Social Psychology 1998;74:1464-80
  Greenwald AG et al. J Personality Social Psychology 2009;97:17-41

- Measures attitudes and beliefs that people may be unwilling or unable to report

  https://implicit.harvard.edu/implicit/education.html

OU Neurology

RACIAL BIAS
Academic Pediatricians & Postop Pain Treatment

- Online survey of 86 academic pediatricians who:
  - Took 3 Implicit Association Tests
  - Read case vignettes & made treatment recommendations
- Subjects' implicit attitudes were significantly associated with their treatment recommendations, specifically…

Higher pro-white bias of the physician was associated with decreased recommendation to use postoperative narcotic medication in African-American—but not white—patients

Sabin JA & Greenwald AG. Am J Public Health 2012;102:988-95

OU Neurology

RACIAL BIAS
Physician Communication During Medical Visits

- 458 patients, 61 primary-care physicians in Baltimore-DC area
  - Patients: 202 white, 256 African American
  - Physicians: 30 white, 21 African American, 9 Asian, 1 other
- 2 independent reviewers (both white women) blinded to physician & patient race used a standardized coding system to assess audiotapes of physician-patient encounters in three areas:
  - Overall process (duration of visit & average speech speed)
  - Patient-centered orientation (physician verbal dominance and physician patient-centeredness scores)
  - Overall emotional tone (patient and physician positive-affect scores)
- ***With African-American patients vs. white patients, physicians were:***
  - ***23% more verbally dominant***
  - ***33% less engaged in patient-centered communication***
- ***African-American patients & their physicians exhibited lower levels of positive affect than white patients & their physicians***

Johnson RL et al. Am J Public Health 2004;94:2084-90

OU Neurology

OBESITY BIAS
Among First-Year Medical Students

- Survey of 1st-year medical students from 50 U.S. medical schools who matriculated in 2010
- Implicit weight bias, explicit weight bias, & explicit attitudes toward weight assessed using validated tools
- ***74% of students exhibited implicit weight bias (32% strong bias)***
  - ***Implicit bias scores comparable to reported bias vs. racial minorities***
- ***67% of students exhibited explicit weight bias***
  - ***Explicit attitudes more negative than toward racial minorities, gays, lesbians, and poor people***
- ***MS1 characteristics that predicted implicit & explicit weight bias included lower BMI, male sex, non-Black race (i.e., thin, white men)***

Phelan SM et al. Obesity (Silver Spring) 2014;22:1201-1208

OU Neurology

OBESITY BIAS
Among Healthcare Trainees

- 107 learners (PA students, clinical psychology interns, & psychiatry residents) at a medical school in NE U.S.
- Subjects completed several anonymous questionnaires regarding their weight bias & experiences with obese patients
- ***Learners reported that patients with obesity were a common target of negative attitudes & derogatory humor by peers (63%), healthcare providers (65%), & instructors (40%)***
- ***33% felt obese patients lacked motivation to change***
- ***36% felt obese patients were nonadherent with treatment***
- ***36% were frustrated by obese patients—esp. those learners with higher weight bias scores***

Puhl RM et al. Obesity (Silver Spring) 2014;22;1008-15

OU Neurology

GENDER & "EXPRESSIVITY" BIAS
Physician Attitudes Toward Women & Expressivity

253 primary-care physicians read simulated cases and answered a questionnaire to determine the effect of gender and patient expressivity on their impressions

- Overall, the physicians felt ***women***, more often than men:
  - Make ***excessive demands on their time*** (25% vs. 14%, p<0.01)
  - Make complaints ***influenced by emotional factors*** (65% vs. 51%, p<0.01)
  - Are ***psychosomatic*** (21% vs. 9%, p<0.01)
  - Are psychosomatic even when nonexpressive (14% vs. 2%, p<0.01)
- Among ***expressive patients***, the physicians diagnosed ***psychosomatic illness*** equally in men and women

Bernstein B & Kane R. Medical Care 1981;19(6):600-608

OU Neurology

DIAGNOSIS BIAS
Neurologists' Headache (HA) Attitudes

Among 147 neurologists responding to the Migraine Knowledge, Attitudes, and Practice Patterns (MKAPP) Survey:

- 35% felt HA pts are ***more emotionally draining*** than others
- 50% felt HA pts are more likely to have ***psychiatric problems***
- 24% felt many HA pts have ***motivation to maintain disability***
- 49% felt HA pts are ***more time consuming*** than others
- 55% felt ***reimbursement did not cover extra time*** HA pts require

And Only

- 25% are ***interested in increasing the number of HA pts*** they see

Lipton RB et al. Neurology 2004;62:1926-31

OU Neurology

INTERVENTION BIAS
The Urge to Intervene in Medicine

- **Intervention bias** – bias on the part of physicians and the medical community to intervene, whether it is with drugs, diagnostic tests, noninvasive procedures, or surgeries, when not intervening would be a reasonable alternative

Foy AJ & Filippone EJ. Yale J Bio Med. 2013;86:271-280

Intervention bias has its basis in:

- **Self interest bias** – being influenced by personal reward – for example, financial gain, fear of malpractice
- **Confirmation bias** – interpreting information in a way that confirms preconceptions – for example, favoring anecdote over clinical trial, failure to report negative trials, suppression of data in reporting clinical trial
- **Social harmony bias** – being influenced by others due to a need to conform & belong to a group – for example, desire to please patients

OU Neurology

SOCIAL HARMONY BIAS

Explains Regional Variations in Healthcare

- 1993 analysis of Maine data
- Carpal tunnel surgery rates varied 3.5 fold among different geographic areas, from 0.82 to 2.87 per thousand
- Variations in carpal tunnel surgery rates were based on ***regional differences in physician decision-making, beliefs, and practice patterns***—not patient demographics

Keller RB et al. J Hand Surg. 1998;23A:692-696

OU Neurology

IMPLICIT BIAS KEY CHARACTERISTICS

Natural Phenomenon Inherent to All Human Beings

Verbatim wording from Ohio State Kirwan Institute website

- Implicit biases are **pervasive**. Everyone possesses them, even people with avowed commitments to impartiality such as judges.
- Implicit and explicit biases are **related but distinct mental constructs**. They are not mutually exclusive and may even reinforce each other.
- The implicit associations we hold **do not necessarily align with our declared beliefs** or even reflect stances we would explicitly endorse.
- We generally tend to hold implicit biases that **favor our own ingroup**, though research has shown that we can still hold implicit biases against our ingroup.
- Implicit biases are **malleable**. Our brains are incredibly complex, and the implicit associations that we have formed can be gradually unlearned through a variety of debiasing techniques.

http://kirwaninstitute.osu.edu/research/understanding-implicit-bias/

OU Neurology

REPEAT EXPERIENCES

Naturally Lead to Unconscious Bias

Initial experience
↓
Heuristic formation
↓
Repeat experience
↓
Emotion with somatic marker
↓
Unconscious bias expression
↓
Behavior

- **Heuristics**
  - Mental shortcuts based on experiences & associated emotion-tagged memories
- **Somatic markers**
  - Autonomic nervous system symptoms generated by emotions in response to repeat experiences
- **Unconscious biases**
  - Gut feelings, intuitions, or preconceived notions triggered by somatic markers that compel behavior

OU Neurology

THE COGNITIVE MISER THEORY

"Lazy Thinking" Induced by Previous Experiences

HEURISTICS (MENTAL SHORTCUTS)

- **Framing** – being swayed by wording or the way information is presented
- **Anchoring** – sticking to first impressions
- **Availability** – generalizing based on personal knowledge or experience
- **Representative** – making assumptions & stereotyping
- **Blind obedience** – believing outside information without consideration
  - Diagnostic testing
  - Patient rationalizations
  - Opinions/diagnoses of other physicians
  - Consensus statements

OTHER COGNITIVE BIASES

- **Confirmation** – interpreting information in a way that confirms preconceptions
- **Hindsight** – overestimating the predictability of an event
- **Action oriented** – being influenced by pressure to take action
- **Self interest** – being influenced by personal reward
- **Pattern recognition** – a combination of availability & confirmation biases
- **Social harmony** – being influenced by others due to a need to conform & belong to a group
- **Stability** – being influenced by comfort with the status quo

OU Neurology

UNCONSCIOUS BIAS "ACTIVATORS"

External Factors that Trigger Unconscious Biases

- ***Stress***
  - Anxiety
  - Sleep deprivation
  - Hunger
  - Personal & social concerns
  - Bowel or bladder pressure
- ***Time constraints***
- ***Multitasking***
- ***Need for closure***
  - Activates "action-oriented bias"
- ***Conformity***
  - Activates "blind-obedience heuristic" & "social-harmony bias"
  - Occurs as a result of natural "groupophilic" tendencies

The likelihood of falling prey to an unconscious bias is greater in the presence of one of these "activators"

OU Neurology

UNCONSCIOUS BIAS "TYPES"

Human Characteristics (Group Memberships)

Characteristics of other people trigger unconscious biases in all of us: we all have social experiences and, therefore, preconceived notions regarding human characteristics, traits, & backgrounds

- Appearance
  - Dress
  - Hygiene
  - Body mass index
  - Occupation
  - Social status
  - Etc.
- Behavior
- Age
- Gender
- Race
- Religion
- Ethnicity
- Sexual orientation
- Etc.

OU Neurology

UNCONSCIOUS BIAS "INFLUENCES"
Personal Characteristics—Genetic & Environmental

PERSONALITY*
- **Openness**
  - Curiosity
  - Creativity
  - Imagination
- **Conscientiousness**
  - Dependability
  - Self-discipline
  - Proactive behavior
- **Extraversion**
  - Energy
  - Assertiveness
  - Sociability
- **Agreeableness**
  - Trust
  - Compassion
  - Cooperation
- **Neuroticism**
  - Emotional stability
  - Impulse control
  - Confidence / security

ENVIRONMENT
- Knowledge
- Education & training
- Experiences
- Culture & values (groups)
  - Family
  - Religion
  - Ethnicity
  - Nationality
  - Community

How you record & retrieve memories & emotions is influenced by your personality type & life experiences

**The Big 5 Personality Types, also known via the acronym, "OCEAN"*

OU Neurology

NEUROSOCIOLOGY & UNCONSCIOUS BIAS
The DLG Concept of "Groupophilia"

Groupophilia = the tendency or urge to be part of and accepted by a group of people

Groupophobia = fear or intolerance of groups other than one's own

Groupism = the belief that one group is superior to another group

- Individuals survive best within a group
- Evolution depends on survival of the fittest species and survival of the fittest groups within a species
- The human brain is wired to promote "groupophilia," the most potent of all unconscious biases
- "Belief groups" (religion & politics) are the most potent group associations because they are the least amenable to change
- The group promotes survival of its members by fostering both intragroup camaraderie ("groupophilia") and intergroup antipathy ("groupophobia" & "groupism")

David Lee Gordon

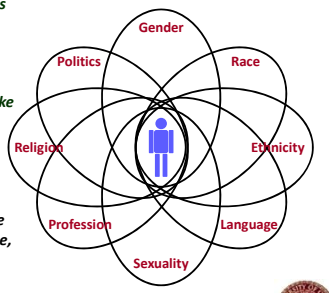
OU Neurology

GROUPOPHILIA IN EVERYDAY LIFE
We Subconsciously Draw a Venn Diagram around People

Our brain subconsciously defines every person in terms of the multiple groups to which we perceive they belong.

Perceived group affiliations evoke emotion-tagged memories and resultant somatic markers and, thus, have the power to modify our behavior.

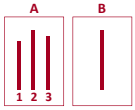
There are many more groups we use to define people, such as age, body mass index, nationality, & socioeconomic status.



OU Neurology

GROUPOPHILIA EFFECT ON PERCEPTION
Solomon Asch Social Conformity Experiments

"Choose the line on card A that is the same length as the line on card B"



- Asch assembled groups of 8 male college students
- He asked each student the question above
- Only the last student in each group was the subject—the other 7 students in each group were secretly part of the research team
- Each group participated in 18 rounds; sometimes all students chose correctly, sometimes the research-team students (the first 7 asked) purposely chose the incorrect line
- ***When majority chose incorrectly, the subject error rate was 36.8%*** (expected error rate < 1%)
- Marked variability in conformity among subjects, from never to almost always

Asch SE. Scientific American 1955; 193:31

OU Neurology

GROUPOPHILIA EFFECT ON BEHAVIOR
Candid Camera Elevator Episode in 1962

Candid Camera was the original "reality TV" show.

This scenario was called "Face the Rear."

OU Neurology

GROUPOPHILIA EFFECT ON PERCEPTION & BEHAVIOR
ABC News Documentary "Eye of the Storm"

Video of teacher Jane Elliott with her Riceville, IA 3rd-grade class in 1970. She first performed the exercise in 1968 after MLK, Jr. assassination. She left teaching in the 1980s to become an early diversity trainer.

The next day, brown eyes were "superior" to blue eyes. "Inferior" students performed inferiorly on tests both days.

OU Neurology

SUMMARY
Unconscious Biases

- ***Are preconceived notions or prejudices*** that occur as a result of normal ***mental shortcuts (heuristics)*** based on past experiences
- Occur in ***all human beings***
- Are a part of ***normal human behavior***
- Occur in ***all health providers***
- Often ***affect patient care***

Next time, we shall review the neuroscience of unconscious bias & how to control it

OU Neurology

THE END

OU Neurology