Forms of Cognitive Biases

Cognitive Biases

- **Availability Heuristic** – accepting a diagnosis due to ease in recalling similar event or case rather than based on probability
- **Representative Heuristic** – Improper use of pattern recognition to detect a 'prototype' to diagnose a condition
- **Anchoring** – staying with an original diagnosis despite evidence to the contrary
- **Ascertainment** – to see what one hopes to find
- **Diagnosis Momentum** – an opinion or working diagnosis becomes almost certain when it is passed from person to person, suppressing further evaluation
- **Omission** – watchful waiting for fear of being held responsible for adverse outcomes
- **Premature Closure** – apply closure to a diagnosis too early so that the correct diagnosis is not considered

Affective Biases

- Team Factors – team dynamic that can increase risk of misdiagnosis
- Fatigue/Sleep Deprivation
- Patient Factors – the care provider's response to various patient factors (e.g. age, gender, race)

Hypothetical Case of Diagnostic Error

Thursday

15-year-old L arrives at University Medical Center and has surgery to correct pectus excavatum (crease in the chest cavity) to prevent potential respiratory problems in the future. It's a relatively new surgical technique that physicians think is safe and parents think "is like getting braces." The bar is repositioned in the chest four times and surgery takes 3x longer than expected, but the surgeon says L did fine. L reports his post-surgical pain is 3 on 1-10 scale.

No room in the surgery ward. L is taken to the children's cancer ward.

Friday-POSTOP DAY 1

Unremarkable

Saturday-POSTOP DAY 2

Evening: L begins to run a slight fever. His feet are cold to the touch.

Sunday-POSTDAY DAY 3

6:30 am: L gasps with pain in his upper abdomen – tells his mother "It's the worst pain imaginable" and she summons the nurse. Nurse asks him pain scale question, L reports it's "five on a scale of five."

The nurse tells L and his mother the pain is gas and says, "There's nothing I can do for gas pain." Post-surgical intestinal blockages are common on this ward. In nurses' notes that morning, a nurse writes, "gas pains…pt. need to move around."

Later in morning nurses insist mother walk L. L says his pain is getting worse. Over L's protests, mother and L lap the ward.

Afternoon: L's belly grows hard and distended. His temperature drops, his skin grows pale and he drips with a constant cold sweat. His eyes are sunken. He's exhausted, in great pain. Mother calls the nurse a number of times. Mother gets impression nurse is convinced that L is simply lazy and not walking enough to dissipate his gas pain.

L grips mother's hand in pain. Mother hears nurses "chattering and laughing in the break room," and sees them decorating the ward.

Mother repeatedly asks for a doctor. L is seen by a first year resident. Mother repeats her request, saying she wants to see "an upper level doctor" and a nurse argues with her - mother believes nurse is offended that mother doesn't consider the resident a "real doctor." The resident looks downcast, and mother believes the resident is offended by mother questioning her judgment and her insistence on a veteran physician. Mother reiterates L's symptoms: pallor, dark circles, cold sweat, unremitting abdominal pain. Resident stands at the computer and nods glumly, but never says a word. The resident's conversation with the mother is interrupted multiple times by her pager going off and returning calls. Mother has the impression the resident is too angry to speak.

8 pm chief resident checks L and is told of L's sweating. Chief resident charts "probable ileus" and orders a suppository; documents that L's heart rate is in the 80s (slightly above normal but no cause for alarm). At approximately the same time, a nurse charts that L's heart rate is 126. Chief resident tells mother that L's sweating and lowered temperature (97.7 degrees) are side effects of his medicine because L is so young.

Night: Mother sees that L's pain is still "enormous," but mother stops trying to get a doctor because she believes the chief resident was "a veteran physician" and he had "a confident manner." Mother and son do not sleep all Sunday night.

Midnight: L's heart rate is 142, temperature 95 degrees.

4:00 am: L's heart rate is 140, temperature 96.6.

Monday- POSTOP DAY 4

Morning: L's gut pain suddenly stops. A nurse says, "Oh, good."

Mother asks a resident about L's pale color - his lips are the same shade as his skin. Resident says cheerily, "Oh, that's just that low blood pressure. It pulls the blood away from the capillaries to protect the vital organs."

An aide takes L's vital signs. She can't find any blood pressure.

8:30 am-10:15 am: Others try multiple times and fail to detect a blood pressure. Residents and nurses believe the blood pressure devices are broken. They try various cuffs. Nurses' notes say, "Unable to obtain B.P….B.P. attempts on arms and legs unsuccessful." At 8:30 am L's heart rate is almost double normal.

Noon: Two technicians arrive to take a blood sample for tests. They get just a small sample. L is very pale. As they take his blood, L's speech becomes slurred. He is trying to say something his mother can't understand. He says it again, very carefully and with great difficulty—Mother believes he's saying "It's going black." Mother calls for help. Chief resident enters, call L's name loudly for approximately two minutes, then asks parents to leave the room.

Code is called. They work for 60 minutes.
1:23 pm: L's time of death.