

Give Blood – To Anemic Patients with Acute Brain Injuries

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**Kawartha Emergency
Medicine Conference**



A close-up photograph of a middle-aged Black woman with her eyes closed and a pained expression. She is holding both hands to her temples, with her fingers pressing into her skin. She is wearing a light-colored, possibly beige, blazer. The background is a plain, light gray.

**48 yo Woman, Severe
HA, LOC & 1 Dx SAH**

TRAIN Trial

Acute Brain Injury

Historically
Conservative Transfusions



A person wearing a white lab coat and white gloves is holding a large, clear plastic blood bag filled with dark red blood. Several medical tubes are connected to the top of the bag. One tube is yellow and has the number 'B1607102' printed on it. Another tube is red and has the number 'B1607192' printed on it. The person's left hand is holding the top of the bag, and their right hand is supporting the bottom. The background is a plain, light-colored wall.

**Liberal
Might Be
Better**

TRAIN Trial



In adults with acute brain injury who are anemic, does a liberal RBC transfusion threshold compared with a restrictive threshold improve six-month neurological outcomes?



Research

JAMA | **Original Investigation** | CARING FOR THE CRITICALLY ILL PATIENT

Restrictive vs Liberal Transfusion Strategy in Patients With Acute Brain Injury

The TRAIN Randomized Clinical Trial

Taccone et al JAMA 2024

P

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Population

Adults
ABI
Anemic

Intervention

Liberal
Hb <90g/L

Comparison

Restrict
Hb <70 g/L

Outcome

Unfavorable
Neuro
6 Months
Secondary
Lots

“Patients with acute brain injury and anemia randomized to a liberal transfusion strategy were less likely to have an unfavorable neurological outcome than those randomized to a restrictive strategy.”



Dr. Taccone

Results

N = 820

Mean Age 51, 46% Female

GCS 6, Hb 85

59% TBI, 23% SAH and 18% ICH

Primary

UnFav Neuro

63% v 73%

NNT 10

Secondary

No Stat Diff

Mortality

Composite Outcome

SAE Similar



1. Performance Bias

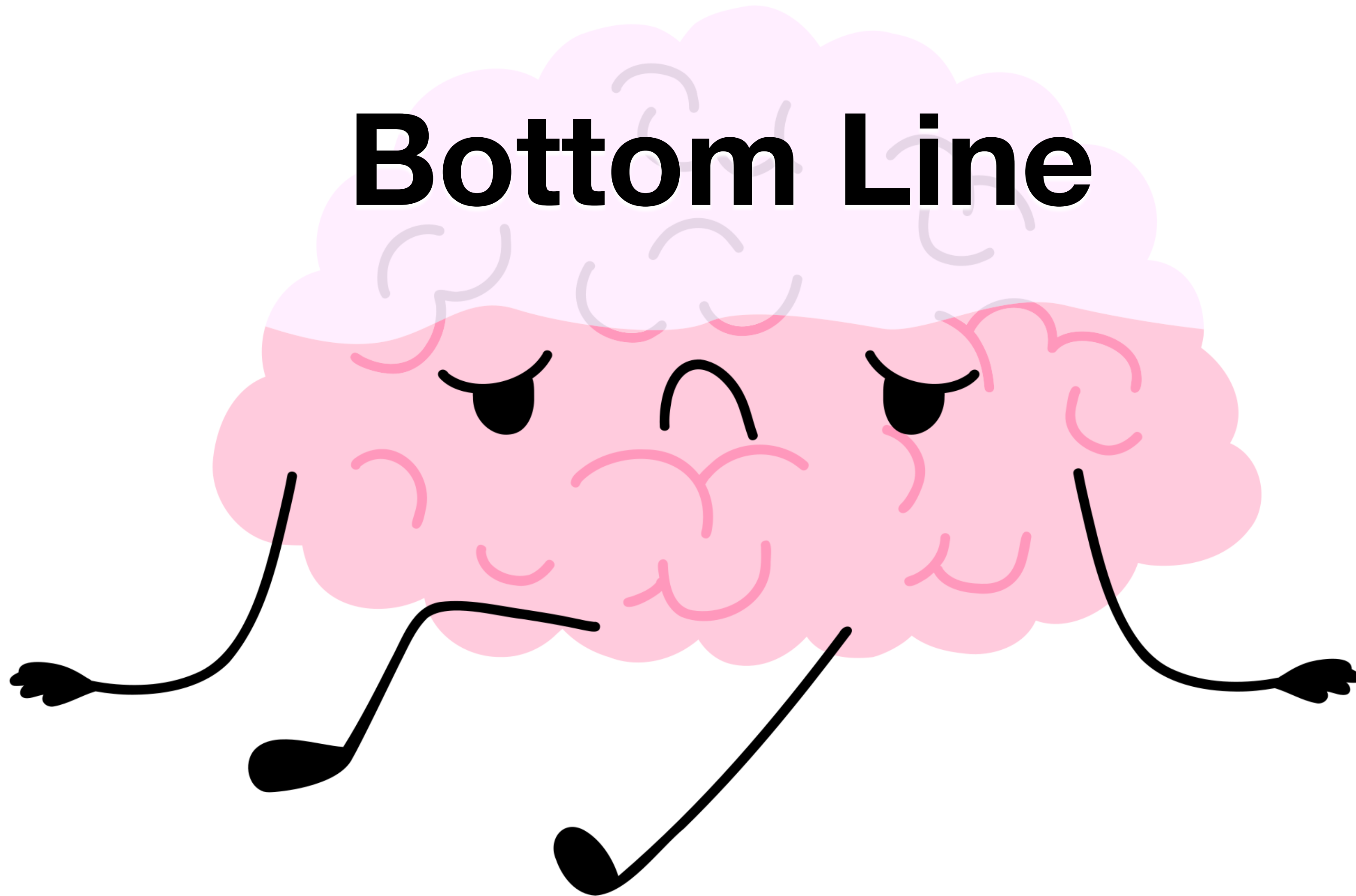
2. Detection Bias

3. Analysis Bias

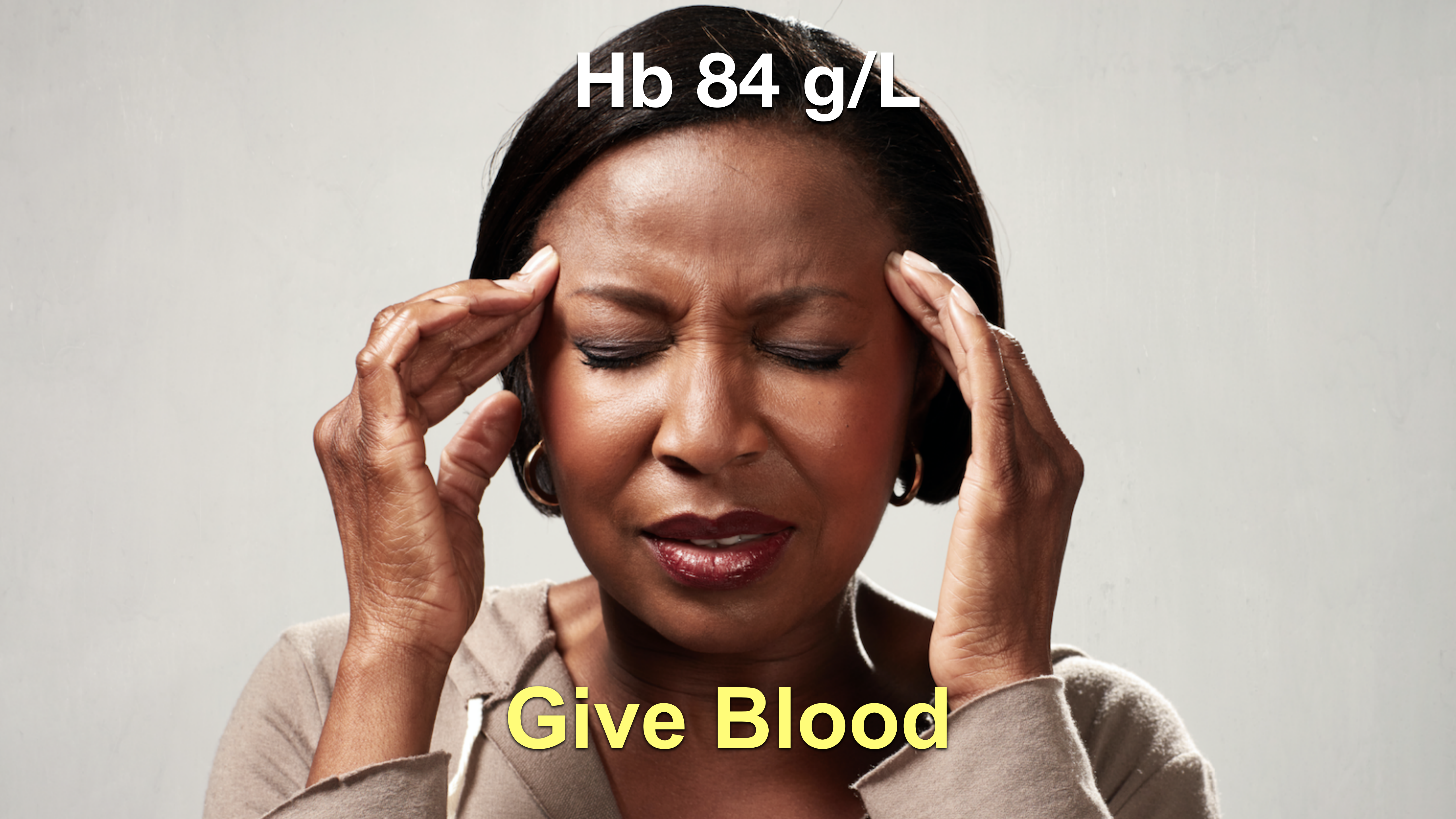
4. Heterogeneous ABI

5. Neuroprognostication

Bottom Line

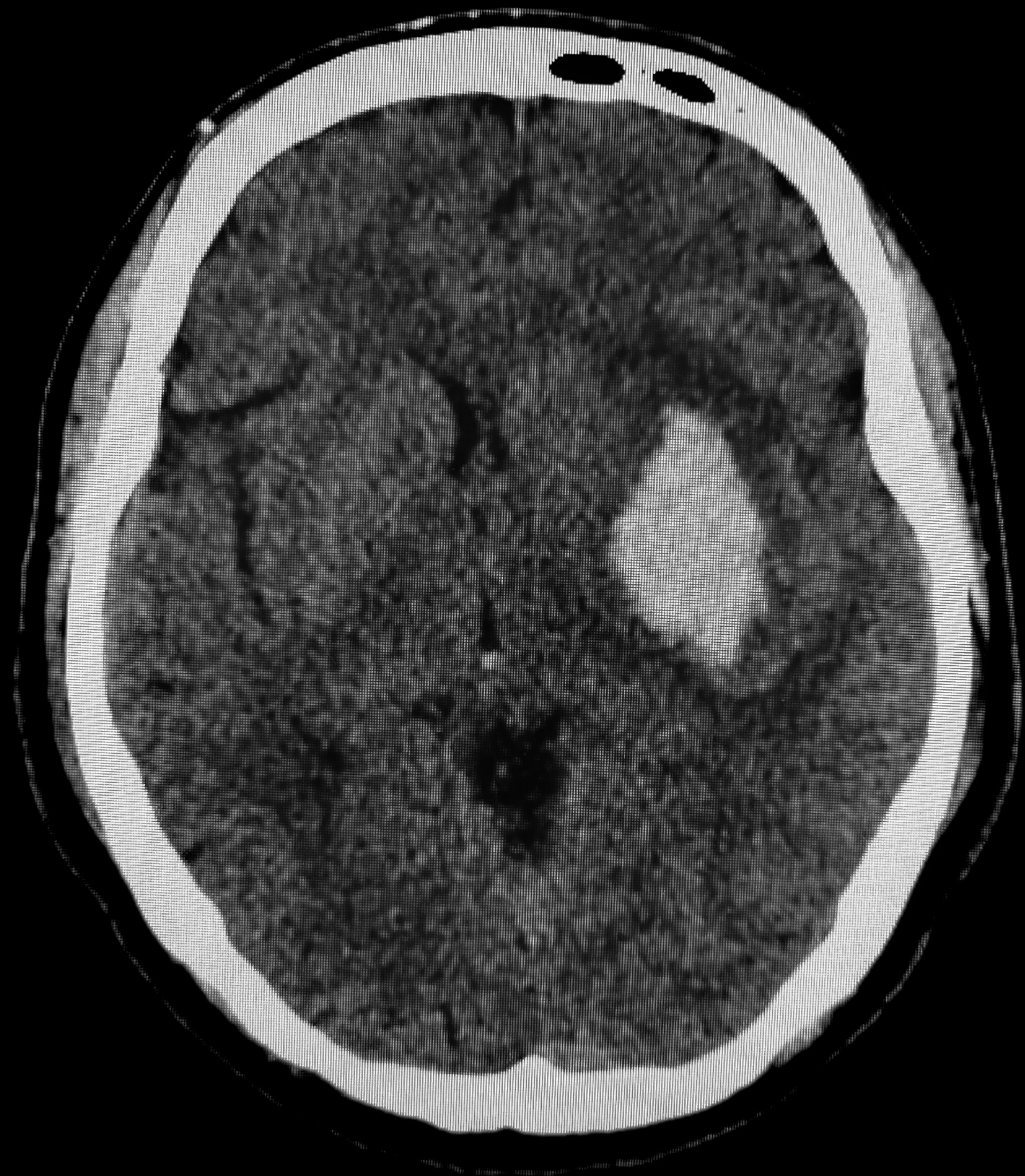


An Anemic Brain Is Not A Happy Brain

A close-up portrait of a woman with dark skin and hair, wearing a beige blazer and gold hoop earrings. She has her eyes closed and is holding both hands to her temples, indicating a headache or dizziness. The background is a plain, light grey.

Hb 84 g/L

Give Blood



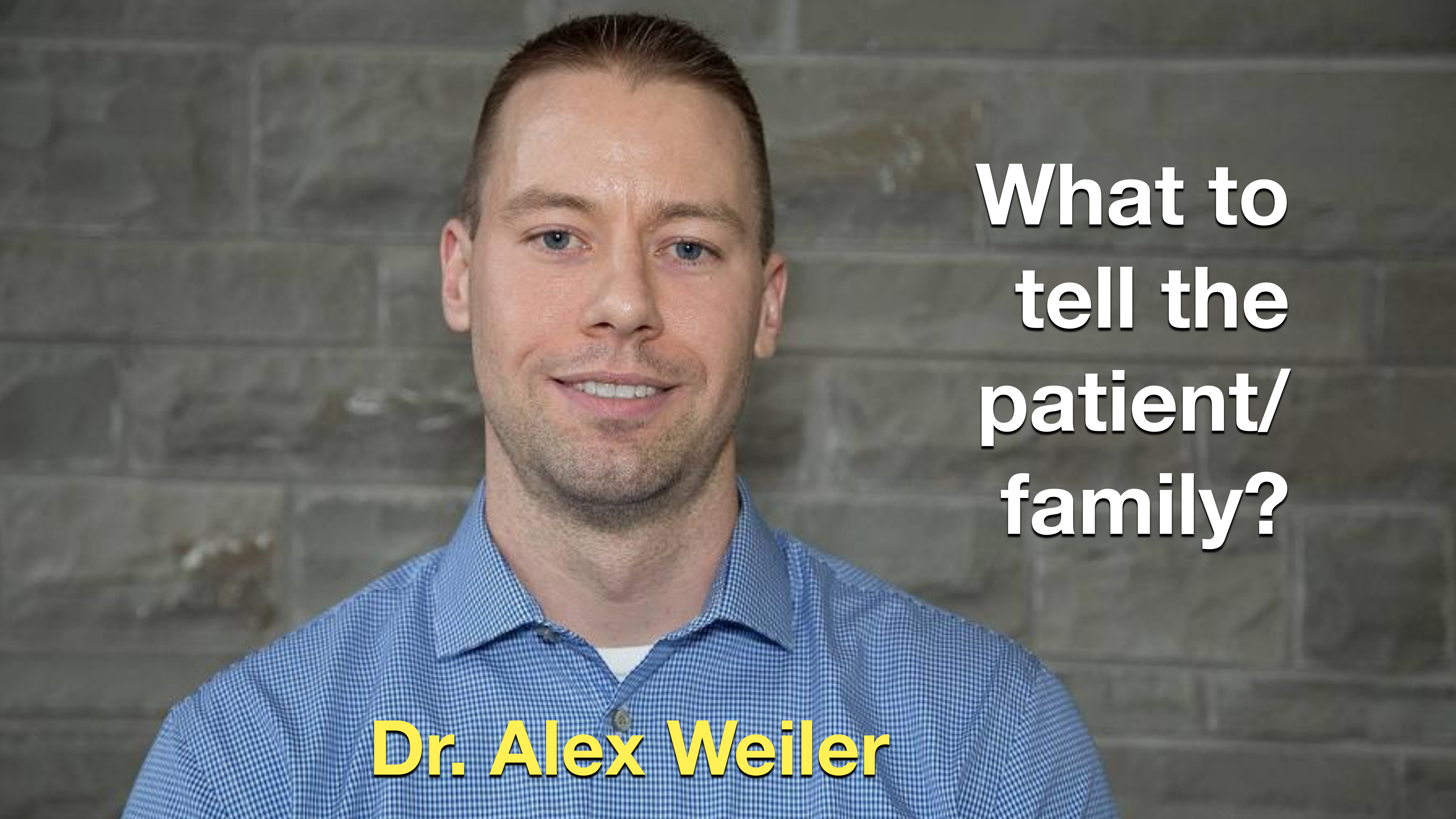
Clinical Application

Adults with ABI

Hb < 9 g/dl

Set Expectations

Standard Care



**What to
tell the
patient/
family?**

Dr. Alex Weiler



Keener:

Dr. Stelts: Save Healthcare Workers Act

Question: What year was the first successful human-to-human blood transfusion, and by whom?



Remember to be
skeptical of anything
you learn, even if you
heard it on the
**Skeptics' Guide to
Emergency Medicine.**