

ELEVATED BODY TEMPERATURE

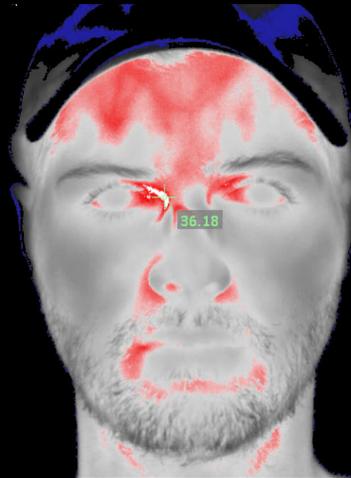
Thermal Assessment Equations

Med-Hot Thermal Imaging

EQUATION INFLUENCES



Infrared Sensor



Human Influences



Outside Influences



#1 THE INFRARED SENSOR

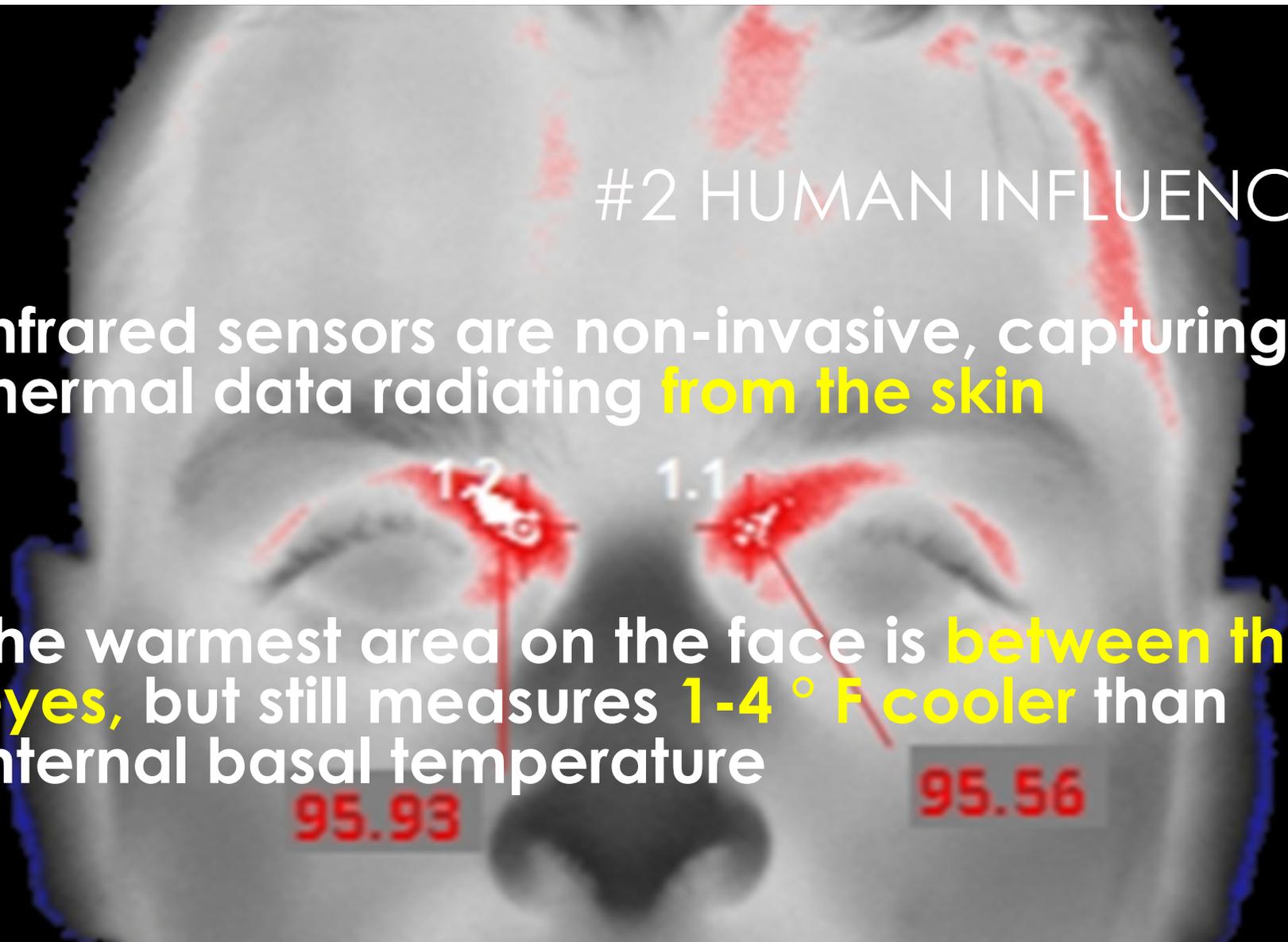
All Infrared Cameras are not thermometers

WHY?

Raw data collected by **any** thermal sensor device is electromagnetic energy, converted, in the laboratory, to a temperature with a black body reference to attempt to correlate **as close to actual temperature as possible.**

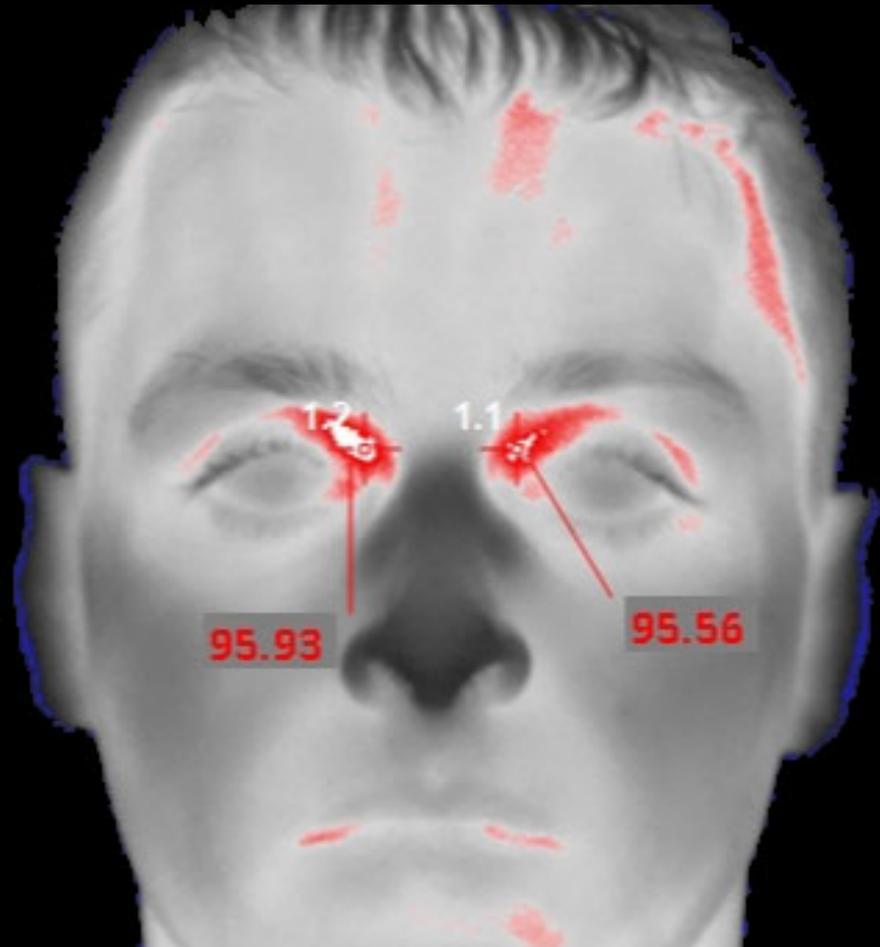
#2 HUMAN INFLUENCES

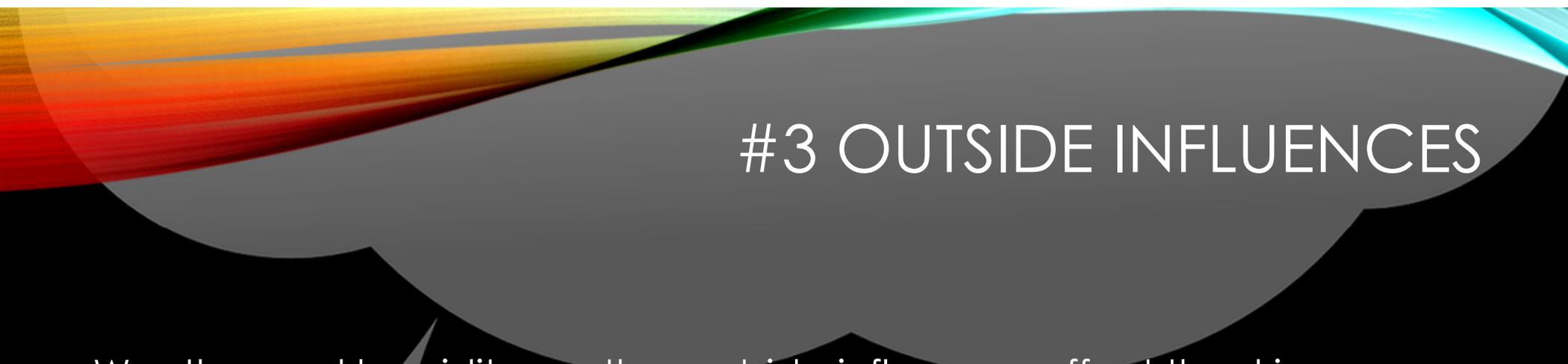
- Infrared sensors are non-invasive, capturing thermal data radiating **from the skin**
- The warmest area on the face is **between the eyes**, but still measures **1-4 ° F cooler** than internal basal temperature



#2 HUMAN INFLUENCES

- People have different healthy internal temperatures, ranging from 97° to 99° F depending on age and other variables
- Normal temperatures can increase 1° F from 8AM to 4PM

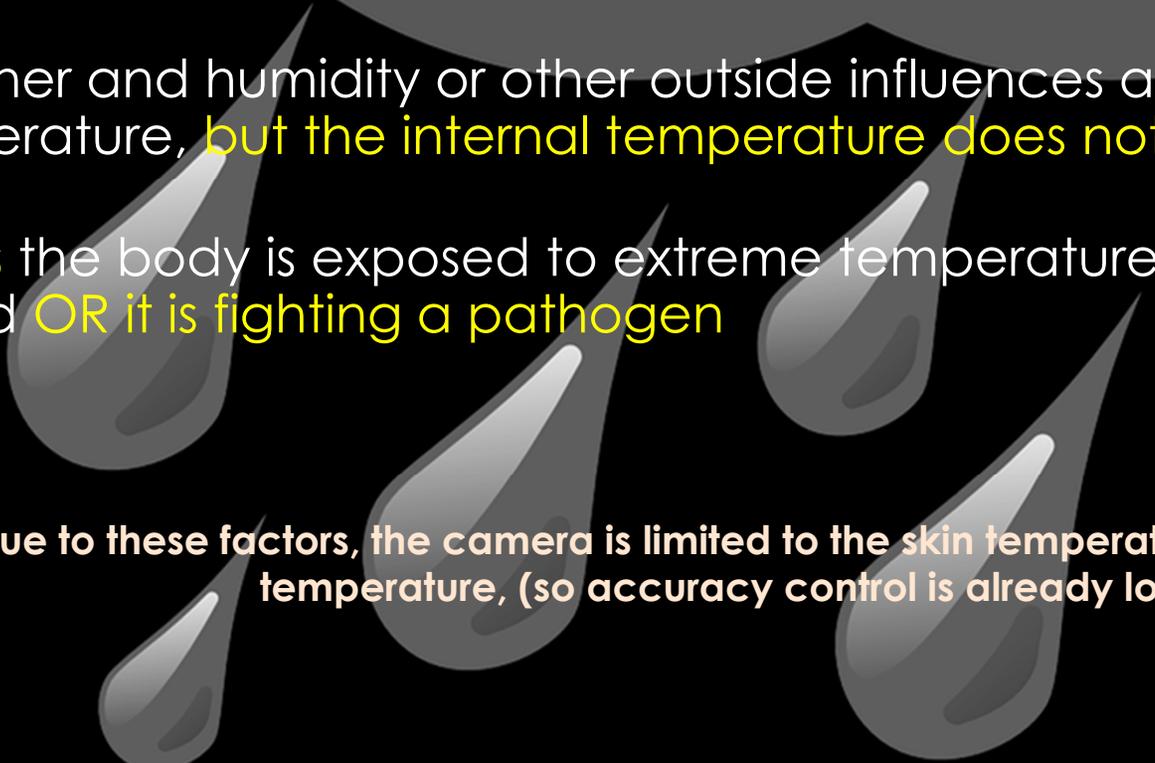




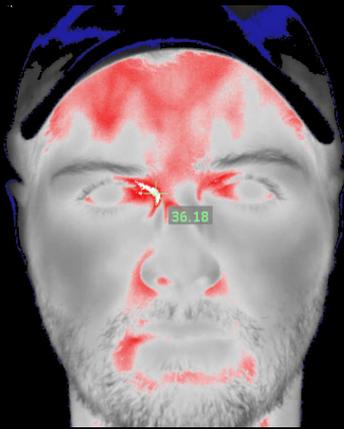
#3 OUTSIDE INFLUENCES

- Weather and humidity or other outside influences affect the skin temperature, **but the internal temperature does not change significantly.**
- **Unless** the body is exposed to extreme temperatures for an extended period **OR it is fighting a pathogen**

Due to these factors, the camera is limited to the skin temperature, not the basal temperature, (so accuracy control is already lost)



EQUATION INFLUENCES

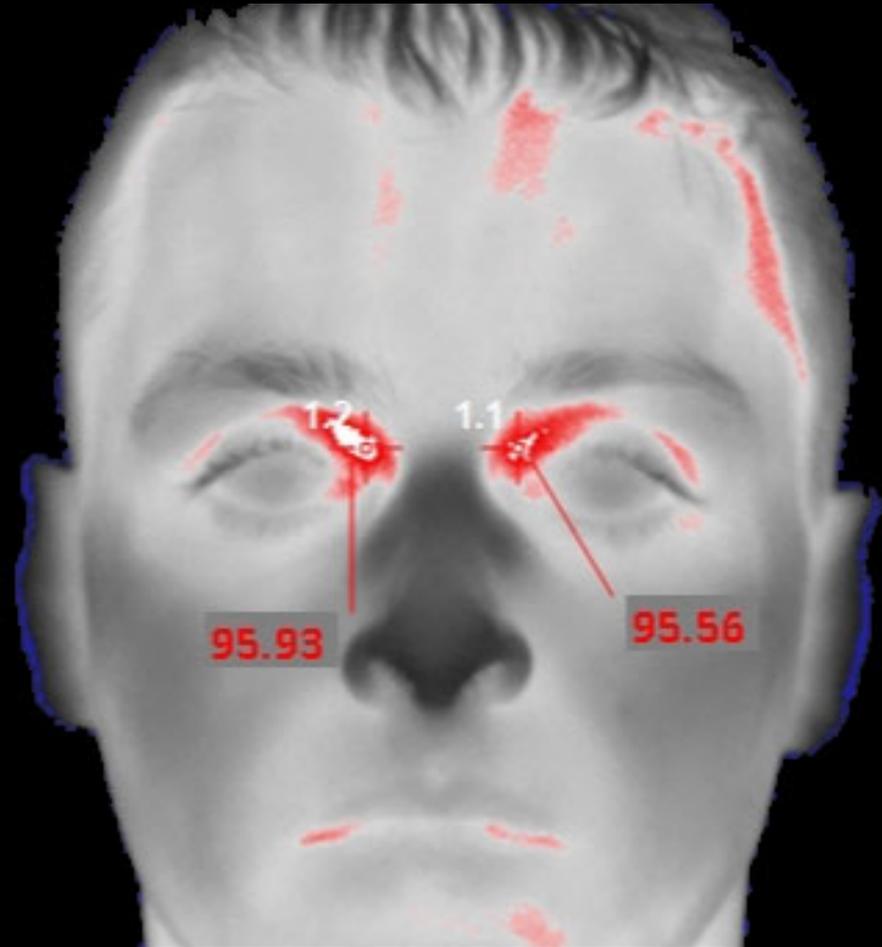


- Thermal Sensors **cannot** determine if someone has a fever by measuring their skin, which is influenced by outside conditions
- **If used correctly**, it can accurately determine the difference in skin temperature between a **person that has a fever and one that does not**.
- This is a highly reliable method of **Human Calibration** for Elevated Body/Skin Temperature assessment

BLACK BODY
SOURCE OPTION:

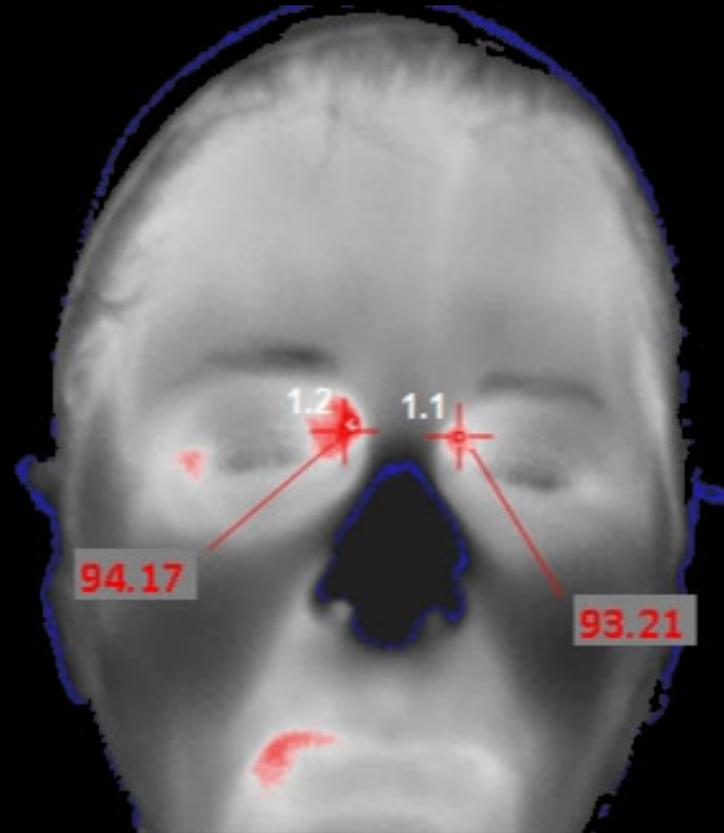
What arbitrary value
factor is used to
determine...

This person's internal
basal temperature?



BLACK BODY
SOURCE OPTION:

OR this person's
internal basal
temperature?



Therefore, there is **NO DIRECT CORRELATION** between Black Body Source and Basal Temperature

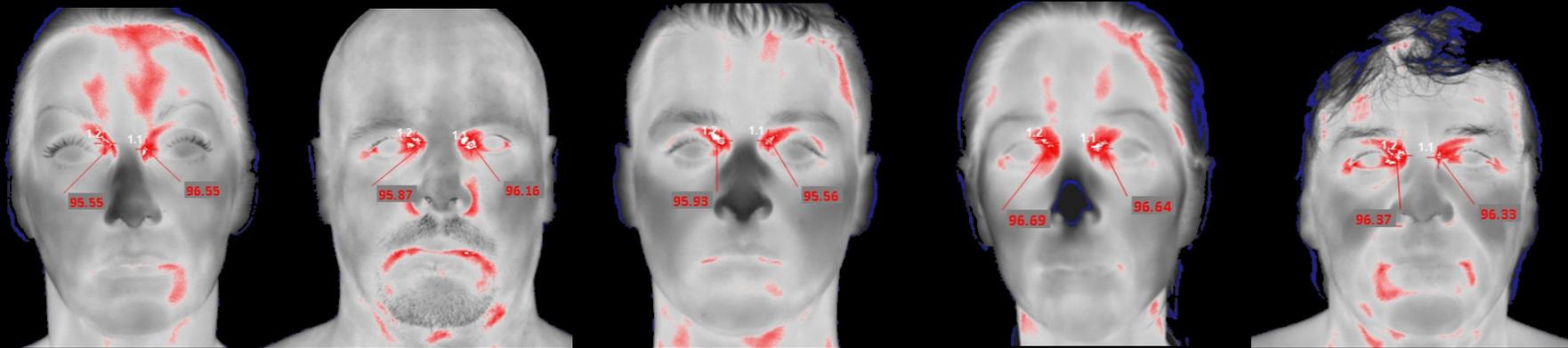
FDA RECOMMENDED HUMAN CALIBRATION

Comparison is more accurate than an assigned arbitrary value



Capture temperature data on 5 or more healthy people (confirmed by thermometer) **entering** the imaging environment to thermally calibrate “normal temperature” **baseline control for comparison to all others**

HUMAN CALIBRATION WHY 2 °?



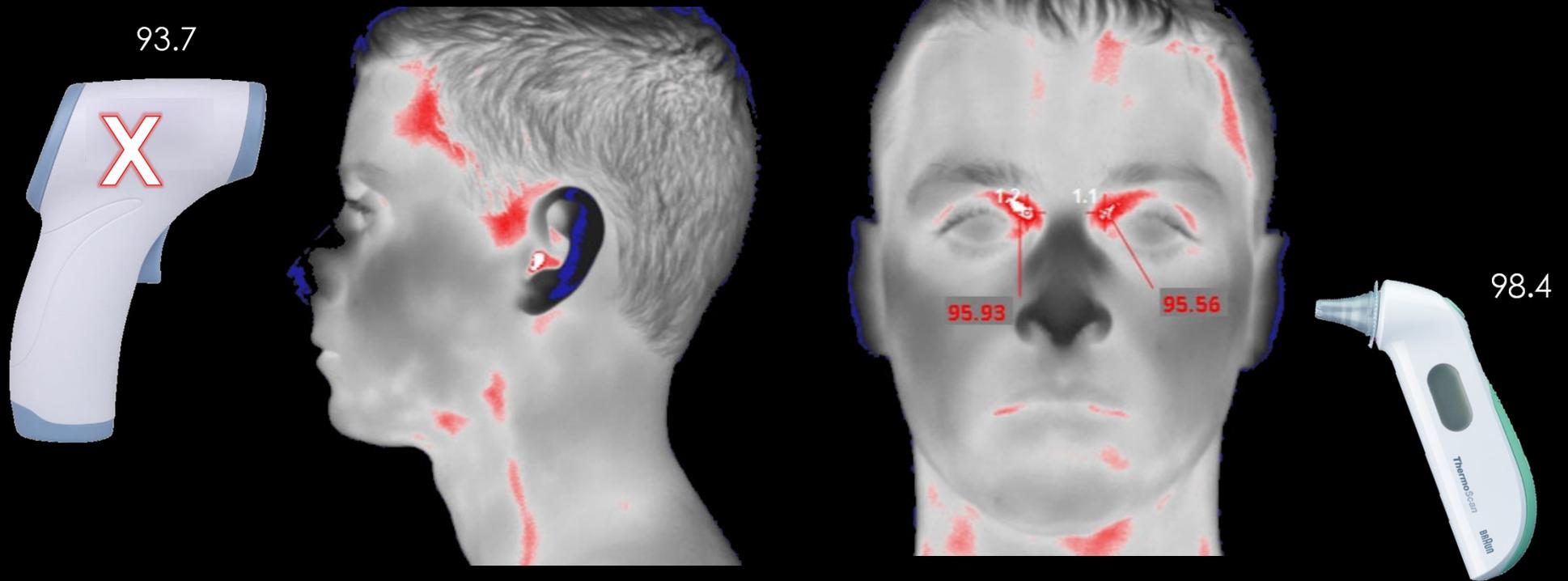
If 96.2 is the average temperature of these 5 people (control)....

If 98.6 is an expected temperature of a healthy person... **and 2° higher** is 100.6 (fever)...

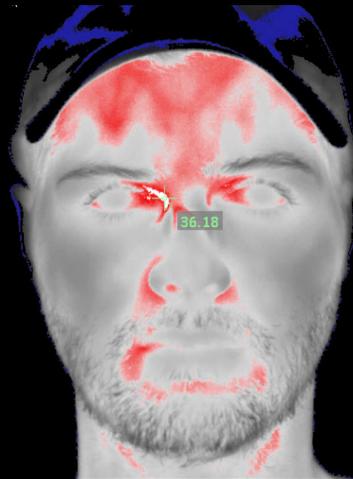
Then to flag a person with a 2° higher temperature than the control...

Creates a comparison that is more accurate for the probability of Elevated Body Temperature... **without the need for a black body**

BASAL TEMPERATURE CONFIRMATION



SINCE THE INFRARED SENSOR CANNOT
MEASURE BASAL TEMPERATURE.....



A calculated estimation is unavoidable in the quest for
identifying someone with a possible Elevated Body
Temperature.

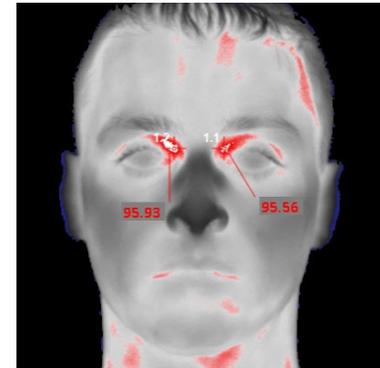
SINCE THE INFRARED SENSOR CANNOT
MEASURE BASAL TEMPERATURE.....



Do you trust the Black Body method, which has no direct correlation to basal temperature, or should you trust the Human Calibration that does have a direct correlation?

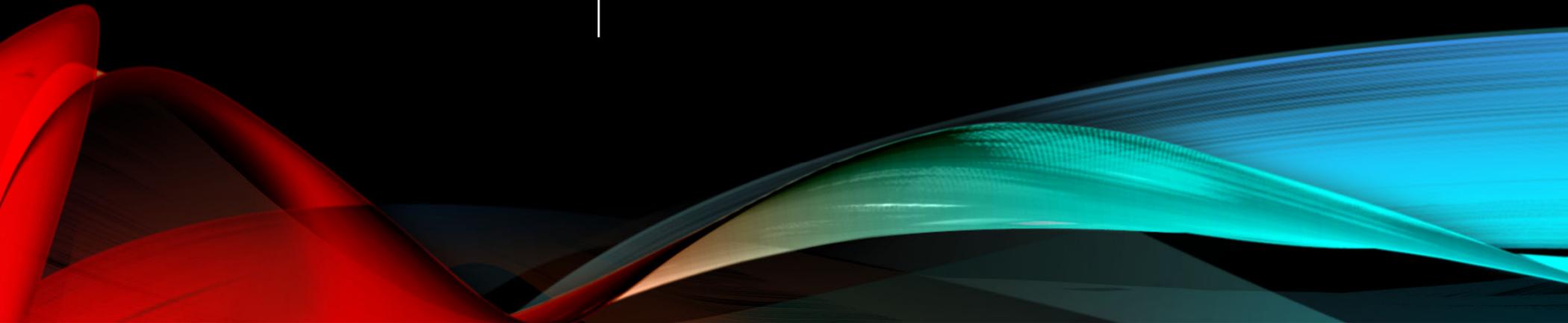
HUMAN CALIBRATION

- Eliminates relying on camera apparent camera/conversion to assume internal temperature accuracy
- Comparison makes the measured and displayed temperature irrelevant
- Focuses the Elevated Body/Skin assessment on the people, not the camera
- Includes consideration for all three influences
- Easy to set up, takes about five minutes to calibrate with 5 people

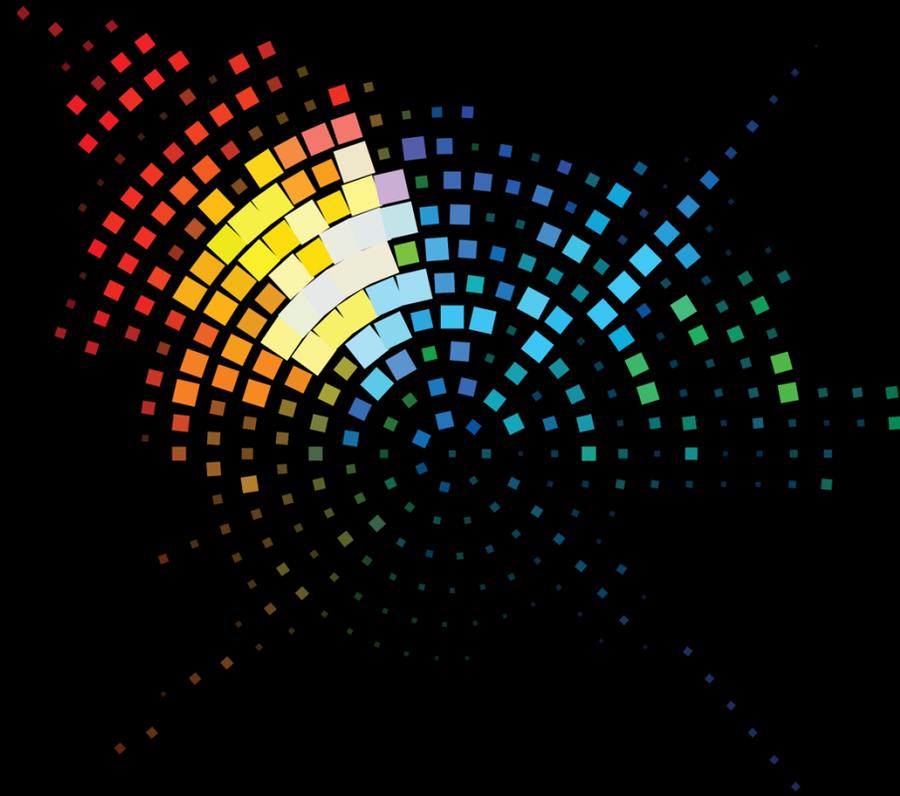


Its all about the people
that are trusting you to
protect them... and the
method matters.

HUMAN OR BLACK BODY CALIBRATION?



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