AlertMeter®

Utilizing Cognitive Impairment Detection Technology (IDT)

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Learning Objectives

1. Expand the definition of "Impairment" It's more that drugs and alcohol.

2. What is IDT and how is it different than Drug and Alcohol Testing

3. Why are employers seriously considering IDT **in addition to current testing practices.**

4. Explore an IDT system and how it can benefit the workers and employers (AlertMeter)

What is Impairment?

Per National Safety Council:

Inability to function normally or safely from a change in behavior as a result of:

- Chemical substances, such as alcohol, opioids or cannabis
- Physical factors like fatigue or medical conditions
- Social factors, e.g., stress

Citation: www.nsc.org/getmedia/4d79416d-be66-4962-8337-c83f1f087e6d/impairment-employer-survey0221.pdf

Common Causes of Impairment

- **Substance Use**
  - ETOH, opioids, THC, stimulants, OTC medications
- **Fatigue - mental and physical**
  - Main causes- sleep loss, shift work, work task demands
- **Mental Illness/Distress**
- **Stress**
- **Medical Disease**
  - Diabetes, seizures, heart disease
- **Exposure to extreme conditions**
  - Hot, cold temperatures, humidity

Knowing the cause of impairment is not necessary to respond appropriately.

Impairment impacts every person

Excessive Overtime and High Fatigue can result in 2X missed workdays and are linked to an increased risk of accidents and injuries.

Exhaustion from illness: Sensitive to impact of COVID-19 and other physical ailments.

Stress from outside sources contribute to loss of focus, irritability, low morale, accident increase.

new baby
illness lower back pain
sick child
pain moving personal conflict
personal conflict
cannabis low blood sugar
boredom
drugs dehydration
fatigue divorce long shift
fight with spouse
injury
alcohol cold medicine

Impairment impacts every workplace

67% of people with a substance use disorder are in the workforce (SAMHSA, 2022).
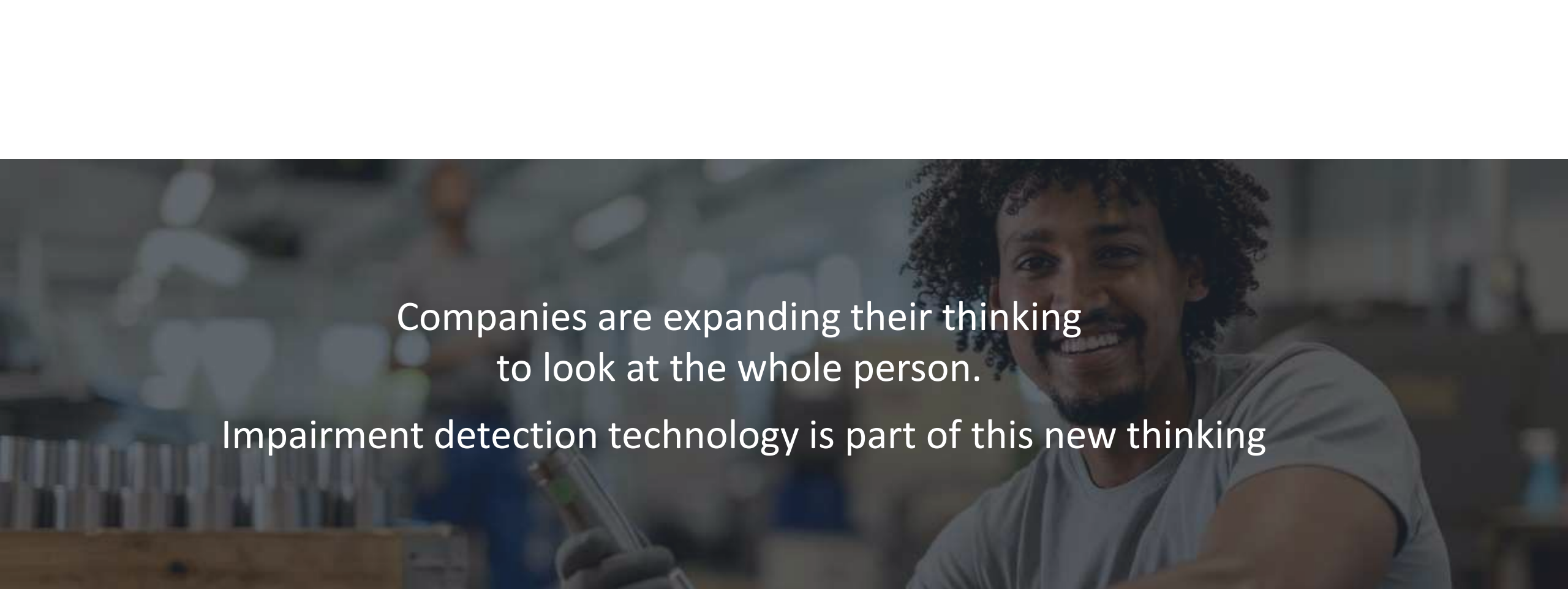
20% of Americans live with a mental illness (NIMH, 2020)

43% of employees are sleep-deprived (NSC, 2018).

In a study of 350 employers, NSC (2021) found that more than half of employers (52%) believed that impairment negatively impacts workforce safety.

Life Happens
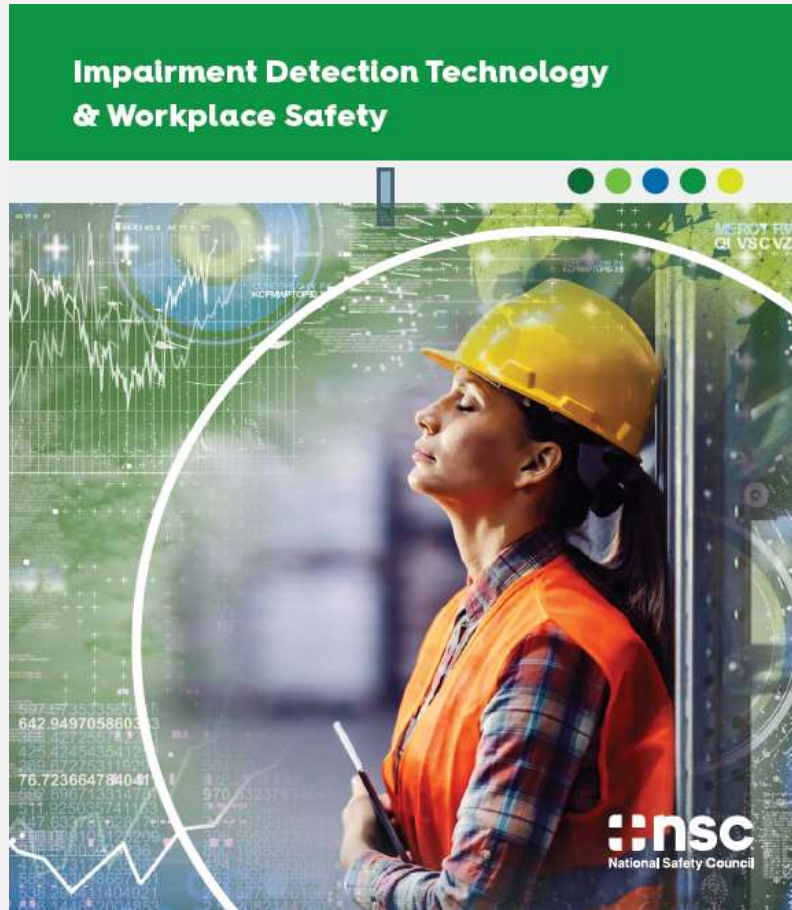
Mature safety cultures recognize this reality

Companies are expanding their thinking
to look at the whole person.

Impairment detection technology is part of this new thinking

*"Are you fit to work **today**?"*

*"We care about **you**, not your lifestyle."*

What is Impairment Detection Technology (IDT)

National Safety Council 2022 Report on IDT

NSC defines IDT as technology with the potential to screen for multiple forms of impairment to aid in fitness for work assessments.

How is IDT different than Drug Testing

- Drug Testing lacks the ability to identify impairment in real-time

- Drug Testing does not address the impairment risk presented by factors other than chemical substances

- IDT is a daily screen for the entire workforce and supports consistent application of policy and procedure.

- IDT can be part of a worker wellness program and integral to employee engagement programs

- IDT does not identify the cause of impairment, rather it detects indicators associated with impairment from various causes and creates a conversation that would not have happened otherwise

- IDT may provide a more holistic solution than cause specific detection technologies (i.e. breathalyzers)

- IDT can act as a singular detection solution for numerous impairment risks thereby providing a more comprehensive solution for employers.

Why are companies implementing Impairment Detection Technology?

Focus on Attentiveness is on the rise

Incidents that are due to Human Factors are not always drug and alcohol related. Often, people don't know why they made the wrong decision or ignored policy and procedure. Distraction or lack of attentiveness is often at the root.

Companies are looking for new ways to enhance worker / manager engagement

Fatigue Symptoms

Fatigue Awareness is on the rise

- Impact of shift work
- Home life/work-life balance
- Second and third jobs
- Family stressors

Focus on :

Absenteeism
Presenteeism
Quality of work
Productivity

Legalized Marijuana

Legalized • Medical and Decriminalized • Medical • Decriminalized • CBD Only • Fully illegal

Source: disa.com

- Fully illegal in only 4 states
- Legal challenges for job termination based on THC positivity
- Inconsistent legislation from state to state
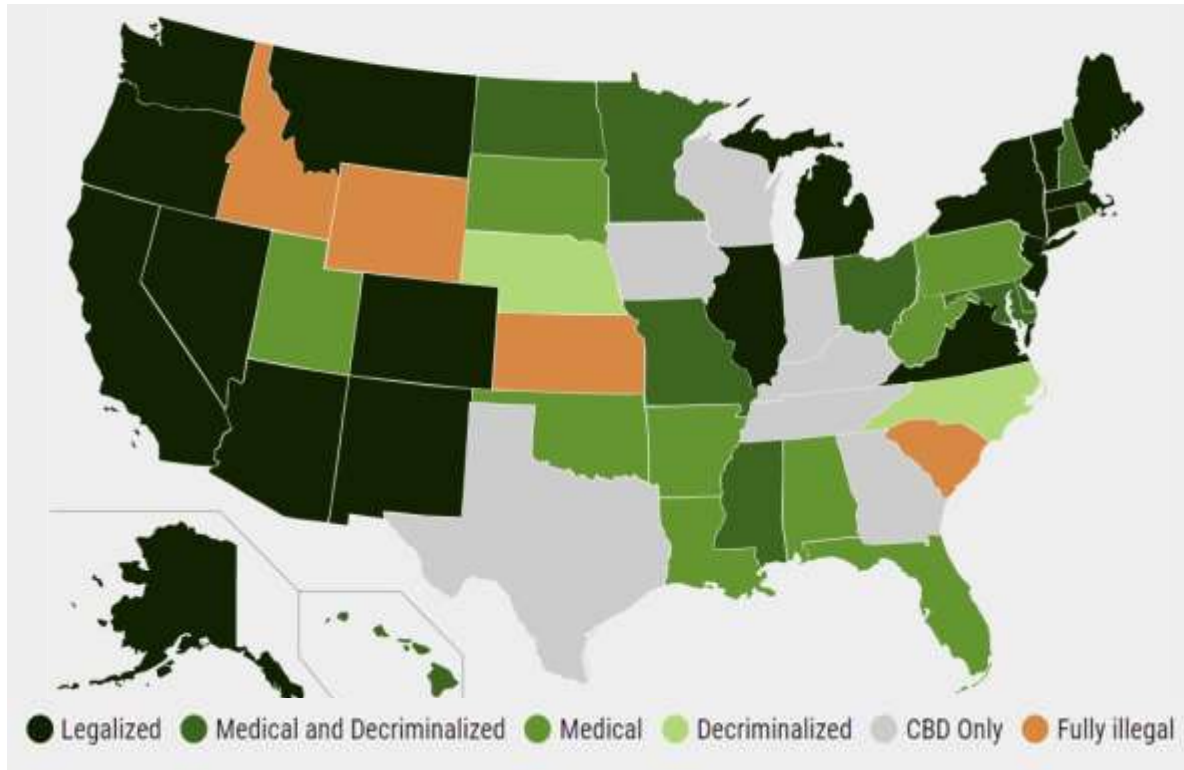
NYC Mobile Dispensary

Balancing workplace safety and employee rights

It's not easy.

D.C. lawmakers pass a bill that would ban firing employees for failed marijuana tests

NJ EMPLOYERS NEED SPECIAL EXPERT'S SIGN-OFF BEFORE DISCIPLINING BASED ON A POSITIVE TEST FOR CANNABIS

Amazon sued over drug tests after man says his job was taken away over positive marijuana test

Kmart pays over $100,000 to settle discrimination lawsuit over inflexible drug testing policy

Rhode Island Legalizes Recreational Marijuana and Protects Off-Duty Use

Mental Health Awareness

Increasing suicide rates

Increased use of anti-depressants and anxiety medication

Role of COVID-19

During late June, 40% of U.S. adults reported struggling with mental health or substance use

ANXIETY/DEPRESSION SYMPTOMS 31%

STARTED OR INCREASED SUBSTANCE USE 13%

TRAUMA/STRESSOR-RELATED DISORDER SYMPTOMS 26%

SERIOUSLY CONSIDERED SUICIDE 11%

For stress and coping strategies: bit.ly/dailylifecoping

CDC.GOV   bit.ly/MMWR81320   MMWR

source: CDC, 2020

Leadership Challenges in Addressing Impairment

Poor training on reasonable suspicion

Younger managers lacking experience and courage

Lack of objective tools to identify impairment

Fear of calling out their friends

The Cost of Other Impairments (Stress, Distraction, Distress, Etc.)

- 1 million workers are absent every day due to stress

- 50% of lost productivity in the US is due to **stress-related absenteeism**

- Job stress carries a price tag for U.S. industry estimated at over **$300 billion**

Fatigue and Sleep Deprivation

"**Response speeds and accuracy** measures on tests among **sleep-deprived** participants were equivalent or worse than when dosed with alcohol producing blood alcohol concentrations from 0.05% to 0.1%"

(Williamson, Feyer, 2000)

Impaired judgment

Reduced productivity

Reduced alertness

Longer reaction time

Impaired memory

Risky behavior

Lower stress tolerance

Poor communication

Reduced physical capacity

Impairment Risk = Financial Risk

Quality

Damages

Reputation

Customer relations

Productivity

Lawsuits

Turnover

Worker's Comp

Insurance rates

Early drivers in the development of IDT

1986: The Chernobyl Nuclear Disaster

Fatigue – due to 13-hour shifts – was a leading contributor to the human error that led to the explosion.
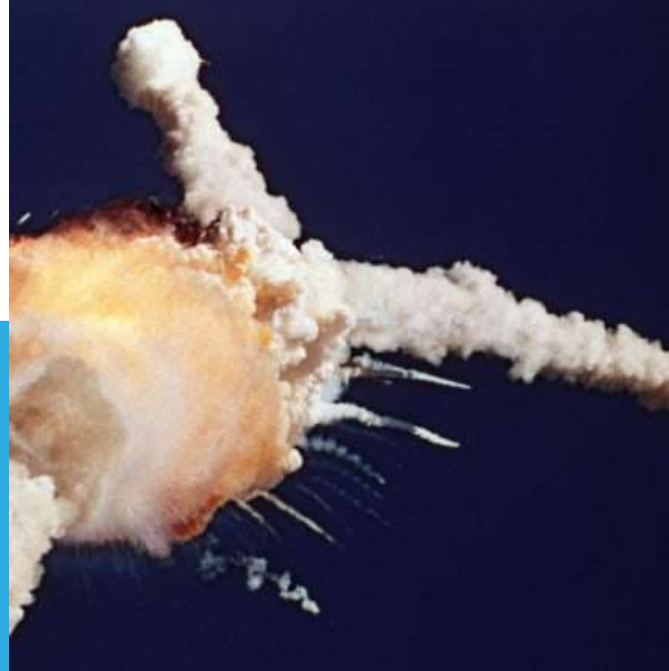
1986: The Challenger Explosion

Poor judgement and human error brought upon by severe sleep deprivation were reported as causes of the disaster.

1989: Exxon Valdez Incident

The officer on duty may have fallen asleep and reacted too late to turn the ship away from the reef.

Early detection systems

- Expensive hardware, non-portable, time-consuming

- Technology not advanced enough to support the science.

Early Neuroscience-Based Tests

MONTREAL COGNITIVE ASSESSMENT

Screening to detect cognitive decline

CANTAB EXECUTIVE FUNCTION TEST

Clinical / Diagnostic testing for brain disorders
(memory and decision making)

PVT - 192

Alertness and Cognitive Performance Evaluation

The NASA PVT+

- Can be used on iOS devices

- 10 minutes

- Measures reaction-time and includes sleep questionnaires

(NASA Ames Research Center, 2021)
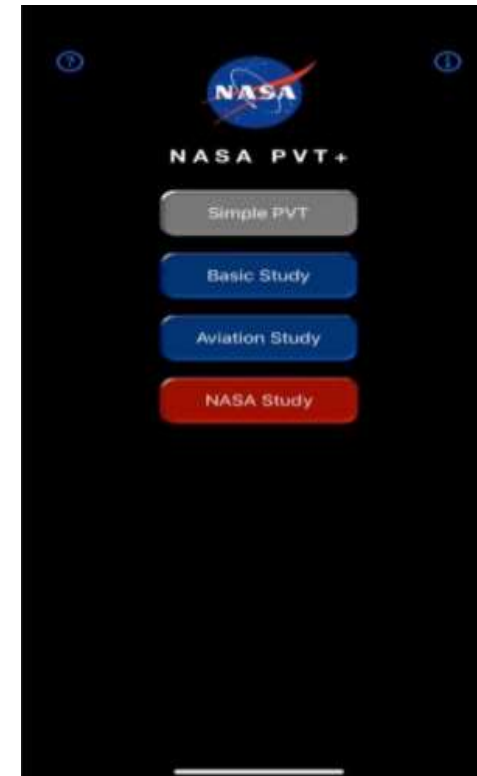
Creating an effective IDT that is suitable for the workplace

Improve on known science

Work with federal science institutions

IDT Goals

Create a scientifically proven way to help workers check their mental fitness each day

Create a was a way to empower managers to have more objective safety conversations?

Create a process to know if your driver is fit to drive before they get behind the wheel?

Create a better way to know your operator was mentally safe to operate a machine?

Understanding what needs to be evaluated

A combination of several cognitive information processes that are essential to the ability of workers to perform their tasks safely, efficiently, and without error.
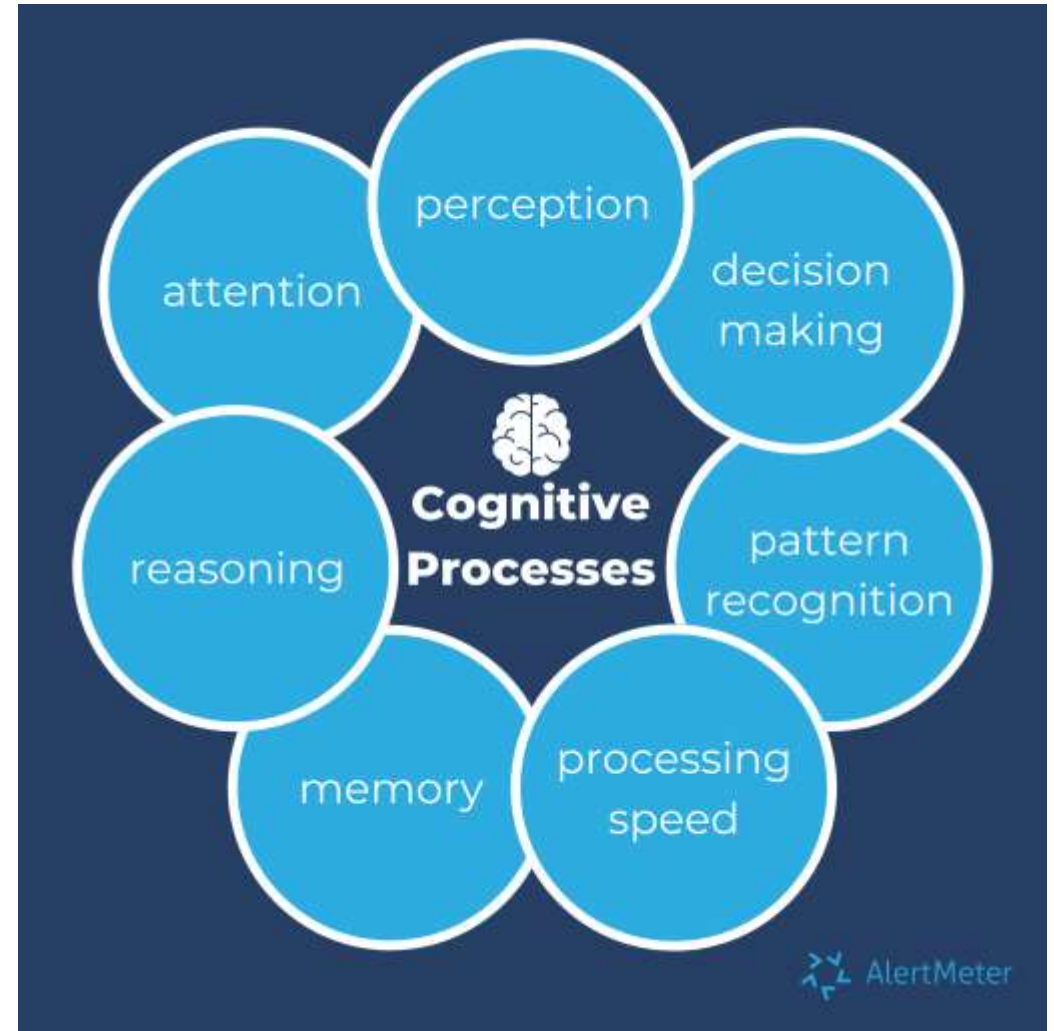
Make it more commercially applicable than a PVT test

To be practical in the workplace a fitness for work test must be short so as not to significantly delay the start of work. A two-minute test is acceptable but a 5-10 minute test would not be. In addition, the test should not depend on language skill and should not be excessively difficult.   At the same time, it must also be valid and reliable in detecting impairment.

Langley, Bowles – National Institute of Occupational Safety and Health (NIOSH) – Research Report – Measuring Human Fatigue with the BLT Testing System

Meet Requirements to pass HR, Operations and Legal Review

✓ Must NOT be a medical test.

✓ Must be non-discriminatory and language independent.

✓ Must NOT contain personally identifiable information.

✓ Must be able to be executed in under 90 seconds. (Today it's 45 seconds)

✓ Must have a low annoyance factor.

✓ No computer experience needed

✓ Works for people that may be naturally cognitively challenged

AlertMeter

45 SECOND DAILY COGNITIVE ASSESSMENT

- SAFETY LEADERSHIP

- PERSONAL FEEDBACK ON ALERTNESS AND VIGILANCE

- FOUNDATIONAL COMPONENT OF A WELLNESS PROGRAM

AlertMeter
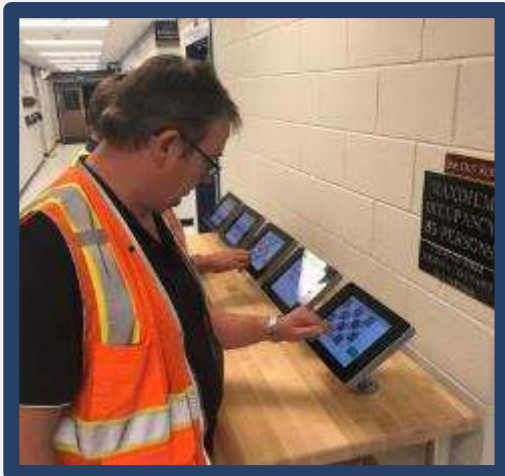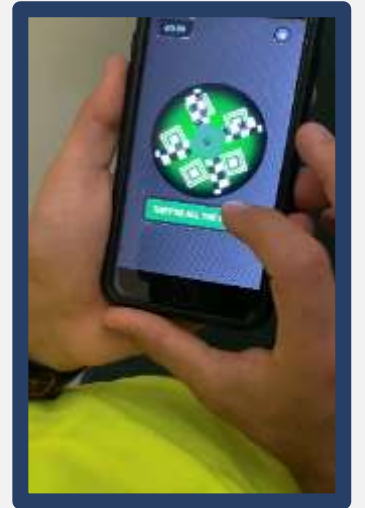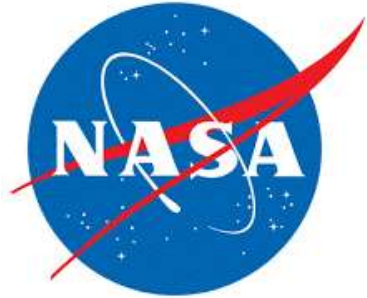
Validated Science

Invented as a response to the Exxon Valdez incident

Based on science originally developed by NASA to assure that astronauts are fit for duty

Funded by the National Institute for Occupational Science and Health

Field tested for 14 years in the South African mining environment (90 million worker hours)

14 Patents and 4 more pending

![AlertMeter®]

Measures variance from individual baseline performance on:

- Decision-making
- Reaction time,
- Short-term memory,
- Ability to switch mental tasks,
- Situational awareness,
- Variations in cognitive behavior

AlertMeter®

WORKS FOR EVERYONE

- Non discriminative

- All ages, backgrounds, education

- Works for people with learning disabilities

- Language independent

- Education independent

- No computer, smart phone or tablet experience needed

How Does it Work?
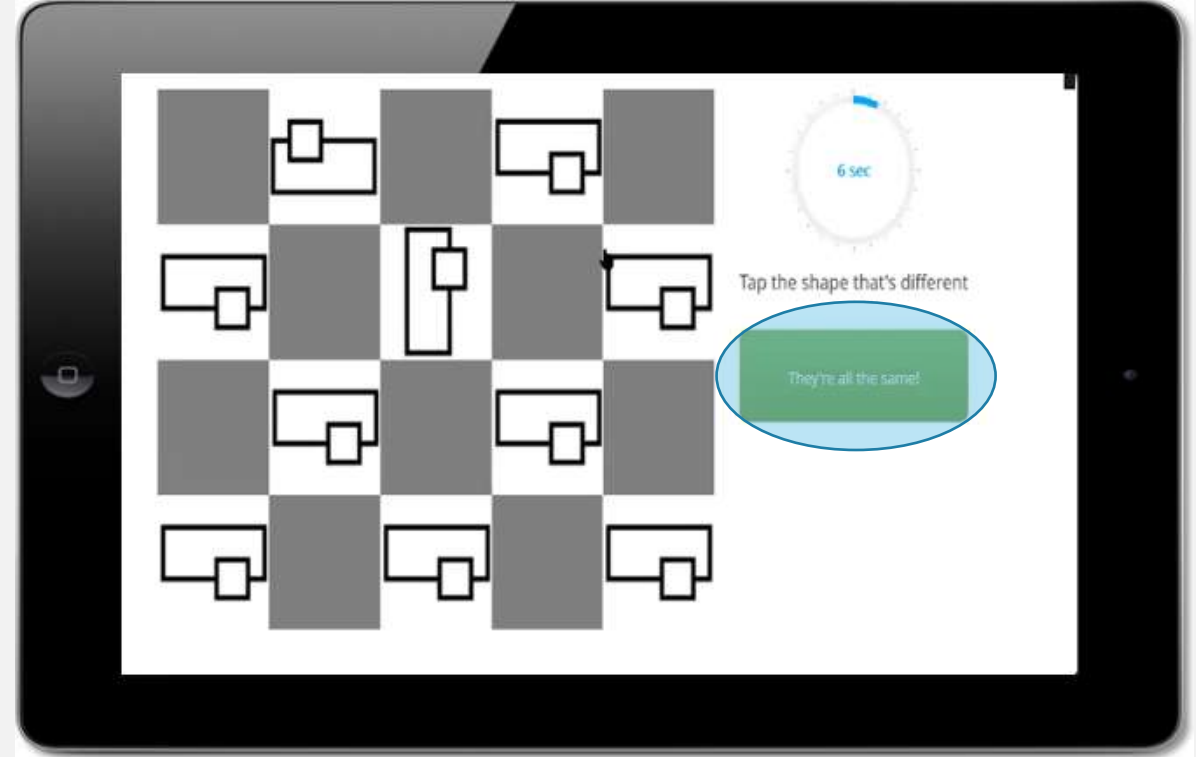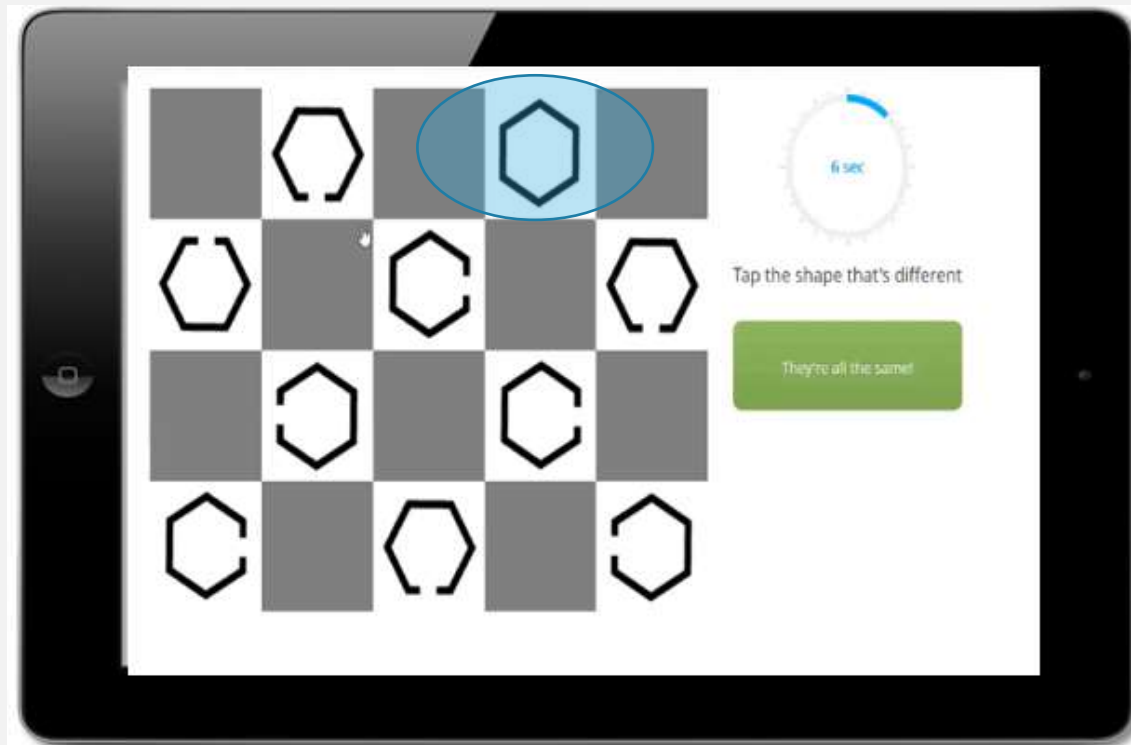
Determine if all shapes presented are the same, or if one shape is different
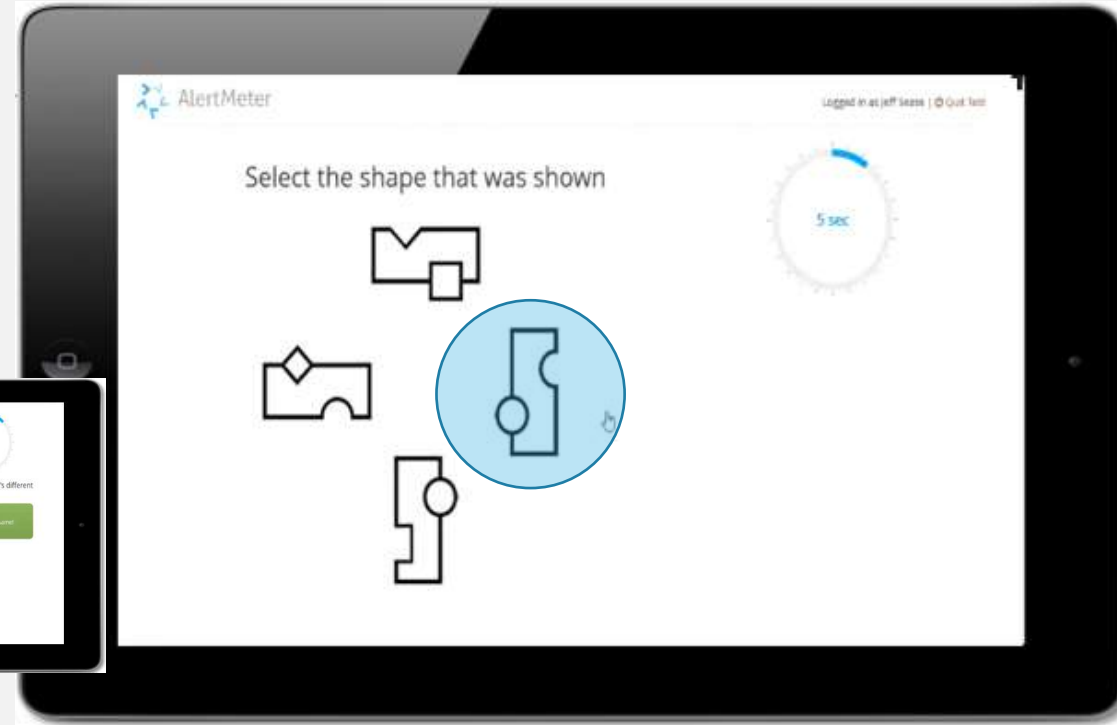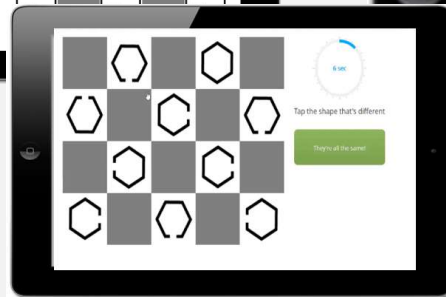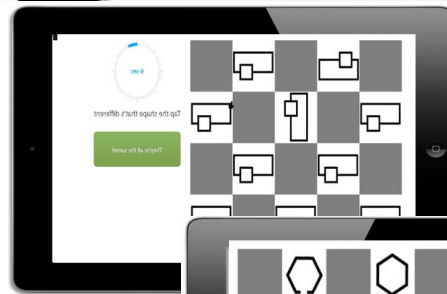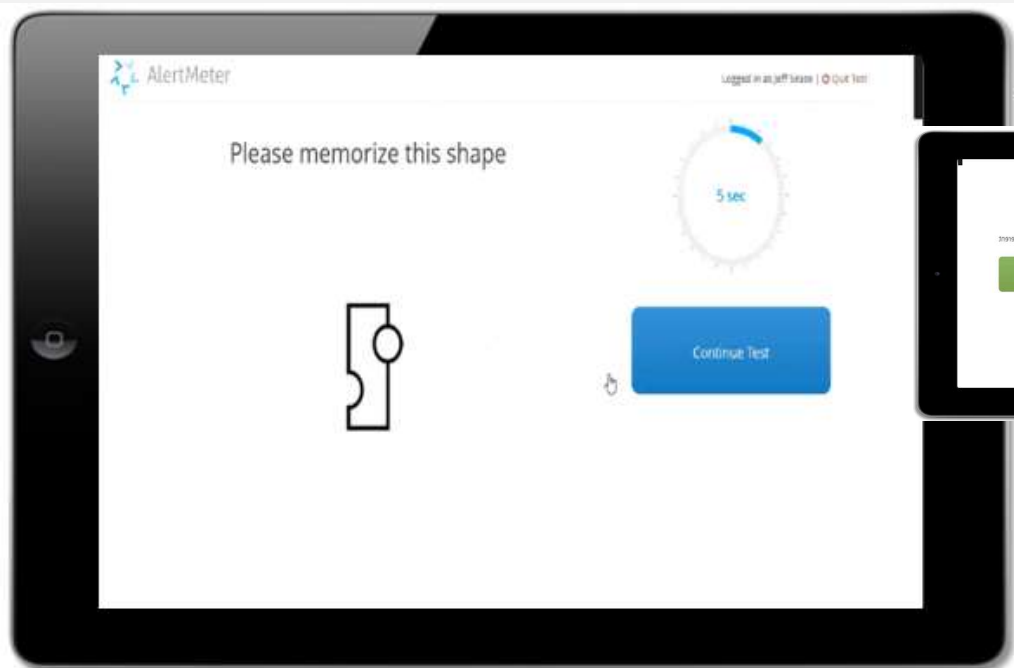
Remember Shapes that are presented

WILL I GET BETTER AT ALERTMETER?

YES ! As you get more comfortable with playing the game, the game adjusts your baseline

There are only these shapes inside AlertMeter. You will get better, but you won't memorize it

The more you play, the more AlertMeter starts to recognize you and your normal behaviors
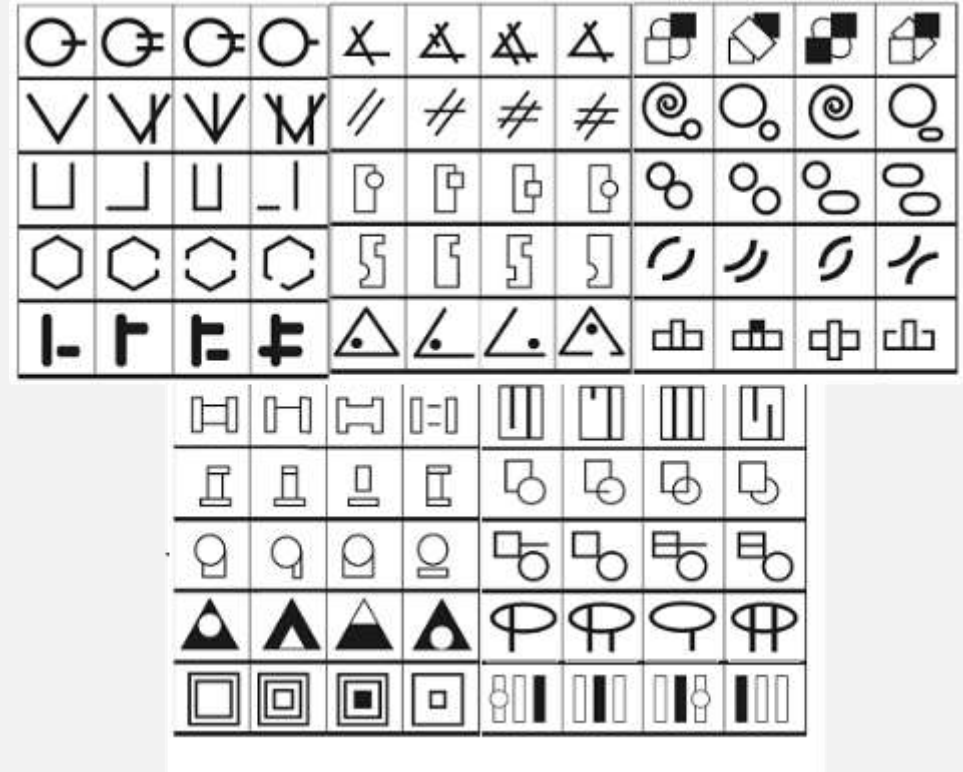
AlertMeter®

People Get Better And The Baseline Adjusts Automatically
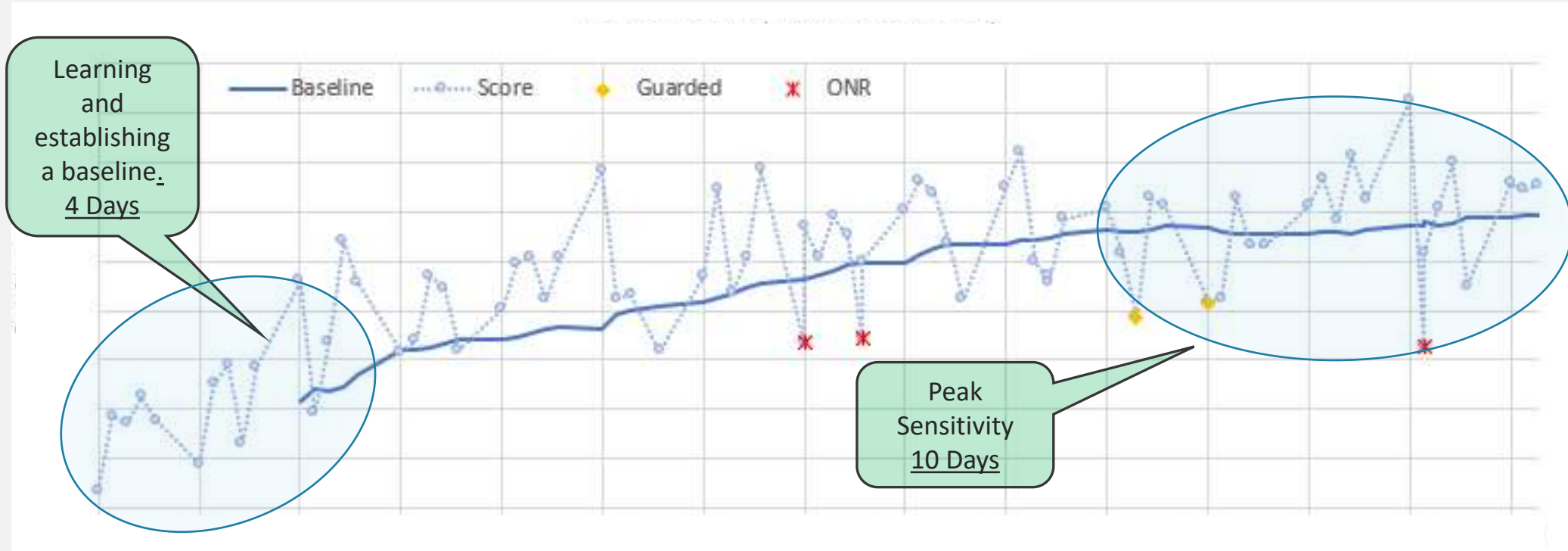
Just like playing a video game, there is a learning curve. The more you play, the better you get. The better you get, the more AlertMeter is able to recognize your normal cognitive behavior pattern.
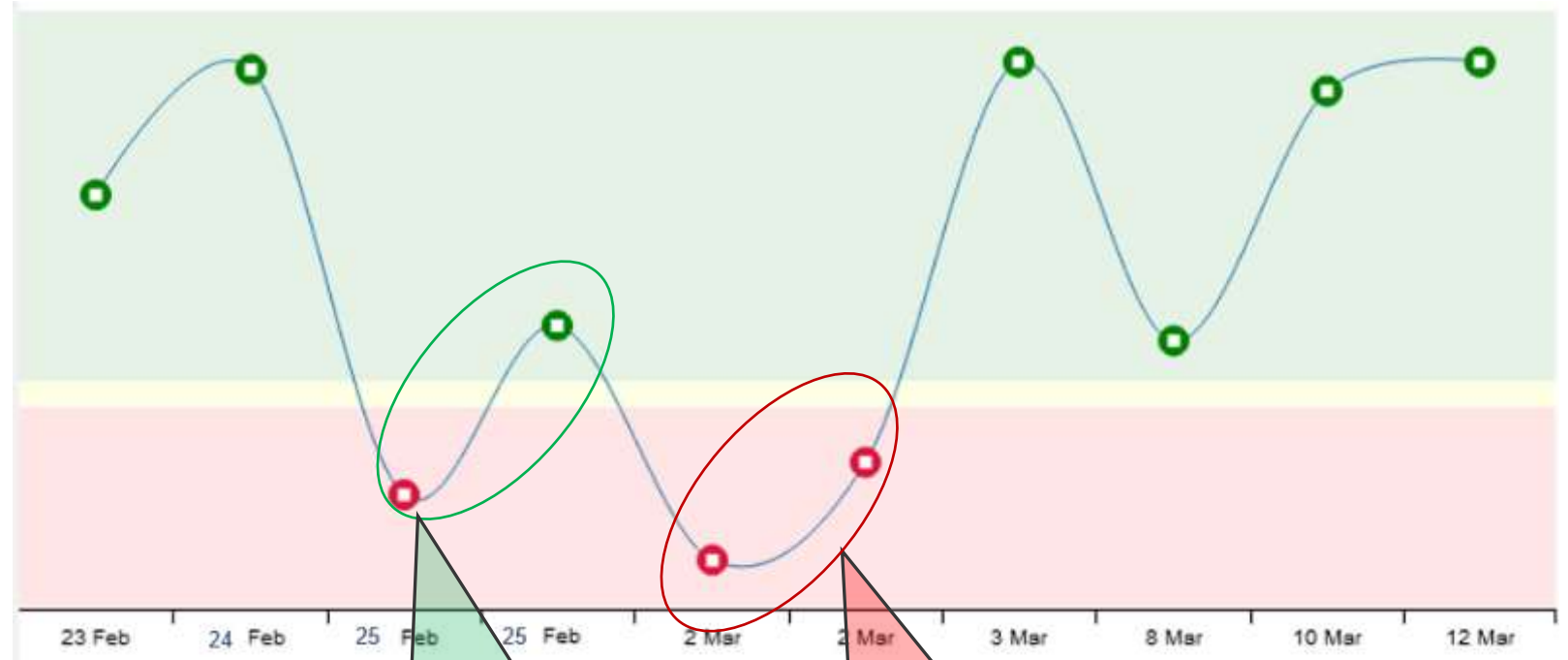
Baseline data is encrypted and cannot be used to compare one employee against another

AlertMeter® Demo – Tablet or Desktop
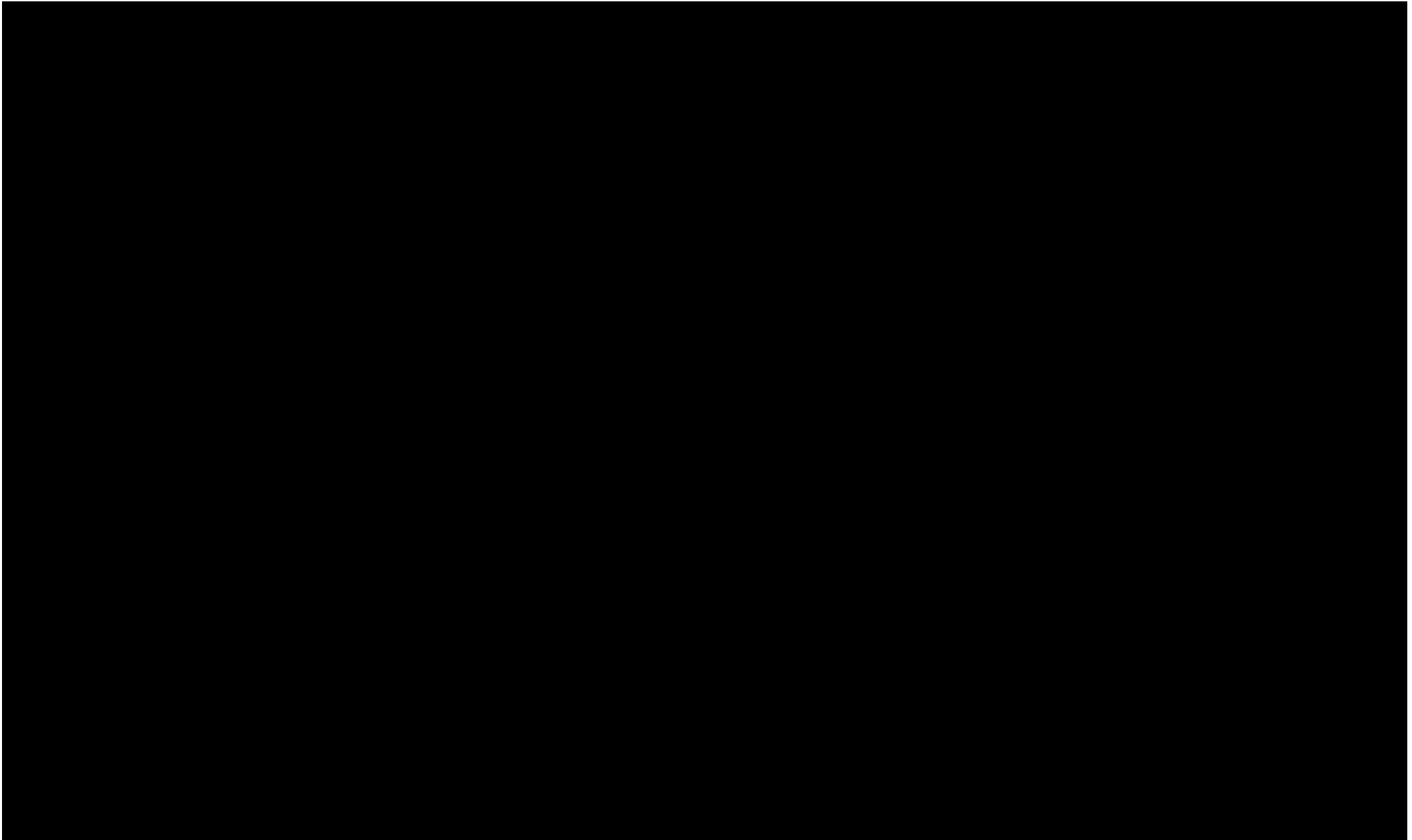
WHAT DO THE RESULTS MEAN?

- Scoring is against your ==PERSONAL BASELINE ONLY==

- Fatigue, illness and emotional distress are the most common causes for 2 scores in the red

- Generates a conversation

- Existing protocol is utilized

On Feb 25th struggled on first test but was able to "get their head in the game" and score within normal range on a second test. <u>No notification generated.</u>

On March 2nd struggled two times in a row and could not score in normal range either time. ==<u>Notification generated.</u>== **==on only1.5% of all tests==**
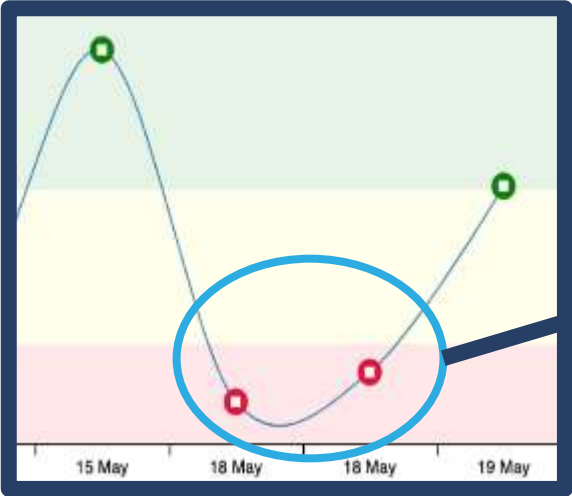
Increase Personal Awareness

Example: FitBit
Provides data to change personal behavior. Increases awareness of physical activity.

AlertMeter®
Offers instant feedback to identify and address cognitive issues before an injury occurs. Increases individual awareness of cognitive wellbeing.
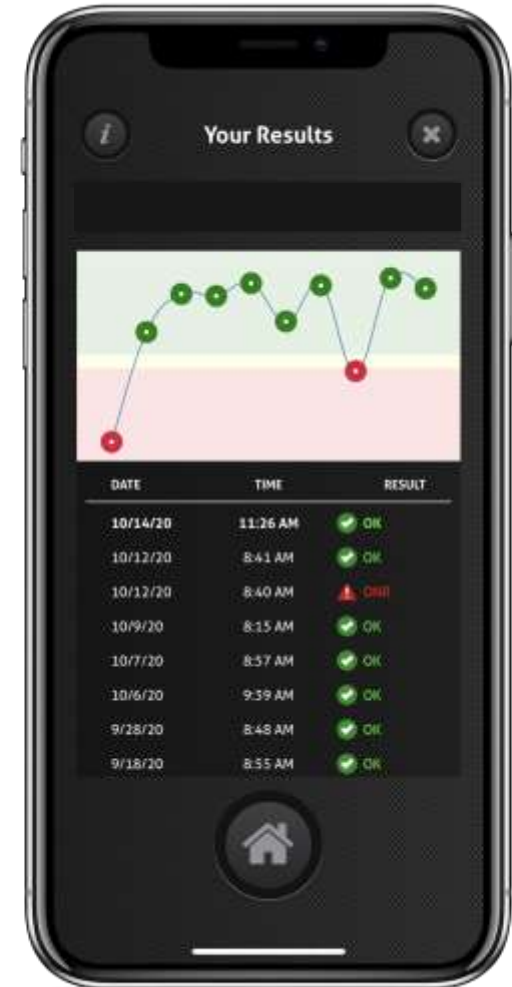
Enable More Effective Leadership

Real Results

Interview with the Safety VP Safety of Triple-S Steel

Q. How many facilities and employees at Triple-S are using the AlertMeter®?
We have ==1800 people at 65 locations== in the U.S. using the AlertMeter®.

Q. What has changed at Triple-S since you implemented the AlertMeter®?
At the facilities where AlertMeter® has been used, ==our incident rate is now very close to zero.==

Q. What other improvements have you seen?
==The interaction between our leadership team and our employees from a safety perspective has just gone through the roof==. It has increased everyone's safety awareness.
Second, in states where ==marijuana has been legalized==, the morale has really improved because there's ==more assurance that everyone is fit for work.==

Enable More Effective Leadership

In Safety, your job is to try to anticipate **WHERE** the next injury/incident could happen and then put better safeguards in that place.

The AlertMeter® allows you to anticipate **WHO** the next at-risk person could be and put safeguards in place for that specific person at that moment.
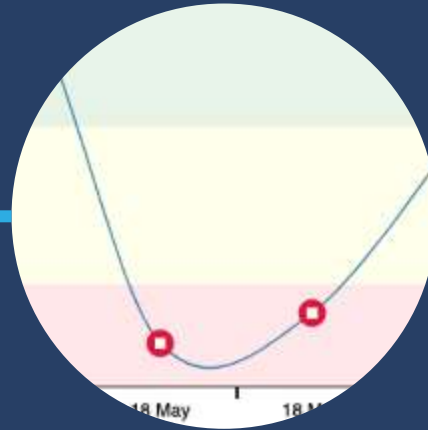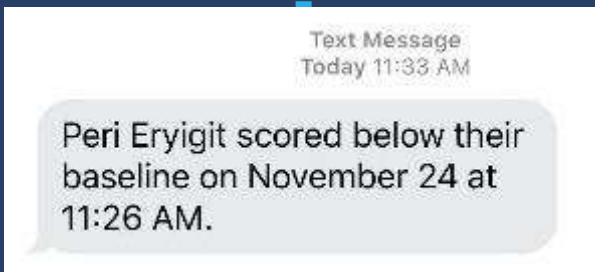
1 60 second test at start of shift

2 Employee alertness levels compared to personal baselines
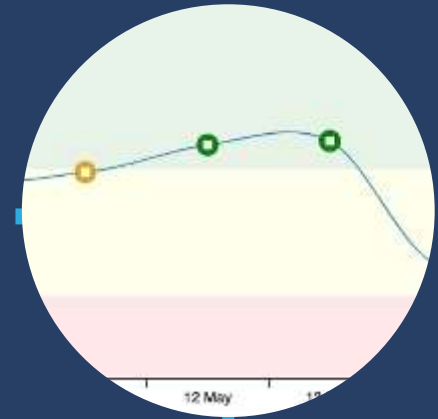
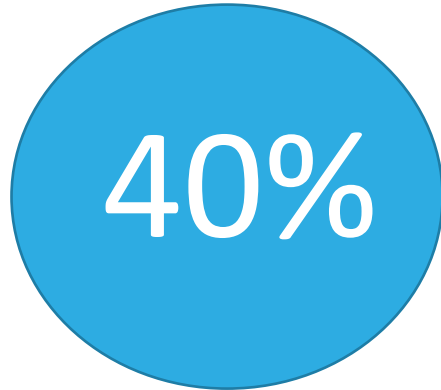**3** In cases of severe deviation, employees score red

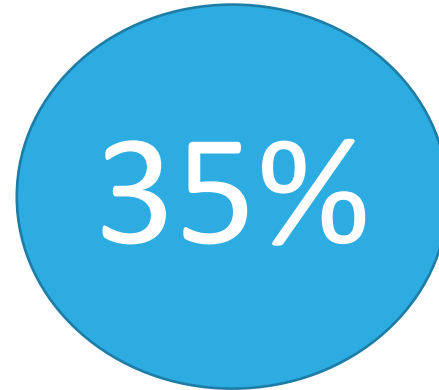**4** Designated supervisor receives email or text

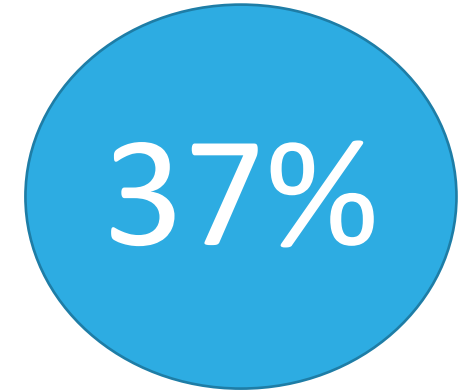**5** Supervisor follows company protocol to address potential impairment

Text Message
Today 11:33 AM

Peri Eryigit scored below their baseline on November 24 at 11:26 AM.

Bottom Line:
Worker Wellness Is Good For Business

40%

Avg. Reduction in
Worker's Comp Claims

35%

Avg. Reduction in
TRIR

37%

Avg. Reduction in
Cost Of Incidents

AlertMeter®

Q&A

To see a live demo and get specific implementation information for your company
Visit predictivesafety.com/alertmeter