Monitoring Clients
Alcohol Consumption
Alcohol Monitoring Considerations

- Alcohol is eliminated from the body quickly
- Level of monitoring
- Cost
- Goal
ALCOHOL MONITORING CONTINUUM

Jail / Prison
Pharma-Injectable
SCRAMx
Random Testing
Supervised 2x Breath
Alcohol Biomarkers
Ignition Interlock

HIGH
BEHAVIORAL RISK

MODERATE
BEHAVIORAL RISK

LOW
BEHAVIORAL RISK
CAM vs BrAC - Windows of Vulnerability

BrAC curve

Estimated BAC / 176 lb male

Between 12a - 5a
4 drinks in 2 hrs

BrAC = .074

Between 8a - 5p
6 drinks in 3 hrs

BrAC = .111

Between 8p - 10p
2 drinks in 1 hr

BrAC = .037
CAM - WHO'S IDEA?

Jeff Hawthorne - Rest in Peace May 2014
CAM Technology

- Achieved by transdermal ("through the skin") means and tested via Fuel Cell Technology
- 24/7 alcohol detection; Court Acceptance; Peer Reviewed; Subject to Research and Validation

- Alcohol Detection with Transdermal Science
  - Fuel Cell Technology
    - Peer Reviewed, Used in Law Enforcement Devices
Transdermal Alcohol Measurement

SCRAMx measures ethanol vapor as it is given off through the skin.

People eliminate a small amount of waste products transdermally in their sweat:
- Sensible perspiration: liquid phase
- Insensible perspiration: vapor phase

Approximately 1% of ingested alcohol is eliminated through the skin via insensible perspiration.

Alcohol present in this sweat was not metabolized in the liver:
- Leaves the body unchanged
SCRAMx: TAC vs. BAC

Typical BrAC Curve

2.5 Hour Delay from BrAC Peak to TAC Peak

BrAC Elimination Rate = 0.019% / hr

Corresponding TAC Curve

5.75 Hour Delay from BrAC 0.0 to TAC 0.0

TAC Elimination Rate = 0.008% / hr
Example: Alcohol Consumption
Example: Obstruction
Noncompliant offender: Types of Obstructions

SCRAMNET Graphs
Single Source Admissibility
Compliant Data
Non-Compliance Process

- Alert Generated

Absorption Rate = 0.031% per hour

Elimination Rate = 0.010% per hour

Subject consumed: 5 Screwdrivers
Peer Reviewed Studies Conducted with SCRAM Bracelet

- University of Colorado Health Sciences ("Validity of Transdermal Alcohol Monitoring: Fixed and Self-Regulated Dosing" (Sakai JT (2006) Alcohol Clin. Exp. Res. 30:1, 26-33))
- Sam Houston State University ("Quantitative Determination of Caffeine and Alcohol in Energy Drinks and the Potential to Produce Positive Transdermal Alcohol Concentrations in Human Subjects" (Kerrigan, Sarah (2009) Journal of Analytical Toxicology, Vol. 33, 27-33))
- Brown University ("Contingency management for alcohol use reduction: A pilot study using a transdermal alcohol sensor" (Nancy P. Barnett (2011) Drug and Alcohol Dependence vol. 118))
- Oklahoma State University ("Continuous Objective Monitoring of Alcohol Use: Twenty-First Century Measurement Using Transdermal Sensors" (Thad R. Leffingwell (2012) Alcoholism: Clinical and Experimental Research))
- “Comparing the Detection of Transdermal and Breath Alcohol Concentrations During Periods of Alcohol Consumption Ranging From Moderate Drinking to Binge Drinking” (Donald M. Dougherty (2012) Experimental and Clinical Psychopharmacology)
The purpose of this study was to test the transdermal alcohol monitoring device on volunteers in a casual setting similar to a party:

- This study indicates that ethanol is excreted through the skin in sufficient quantities to estimate alcohol concentration.
- This study had no false positives.
- Determined that while other types of alcohol containing products would register an alcohol concentration, that concentration would not be viewed as a drinking episode.
Evidence-based Practices

Study: National Center for State Courts

- Offenders with 90 days on SCRAM had a recidivism rate half that of those who wore the bracelet for less than 90 days or not at all
- Recidivism rate dropped:
  - 45% for hardcore DWI offenders (2+ convictions)
Leadership Organization Consensus

- The Century Council
- National Highway Traffic Safety Association
- Traffic Injury Research Foundation
- Mothers Against Drunk Driving
- American Automobile Association
Excuses.....

The Chocolate Donut Theory

Can chocolate donuts and other foods make you drunk?

To reach a .065% BAC, a person would have to consume the following foods in one hour:

- Chocolate Cake Donuts: 274 Donuts (2.4 ounces per donut)
- Chocolate Raised Donuts: 207 Donuts (3.2 ounces per donut)
- Sun Maid® Raisin Bread: 43.48 pounds
- Thomas® Sourdough English Muffins: 26.96 pounds
- Kentucky Bourbon Cake: 7.24 pounds
- Home Pride® Wheat Bread: 25.52 pounds
- 4 beers (12 ounces per serving)

Random Breath Tests

- Old Technology— MEMS/Sobrietor
- New Technology
  - Portable
  - Automated Facial Recognition
  - GPS
SCRAM Remote Breath™

Handheld, wireless, portable breath alcohol testing for low-risk clients

- Wireless, handheld breath alcohol testing for lower-risk offenders

- Automated Facial Intelligence™
  - Digital, automated facial recognition
  - Reduces manual photo review by up to 90%

- GPS location with taken and missed tests

- “Active” Supervision of client

- Immediate Notification

- Store & Forward

- Corrections Grade

- Integrated Software Platform
# SCRAM Remote Breath™

## Testing: Photographs & AFI

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Image of offender recorded and analyzed by AFI when Remote Breath product imposed by court</td>
</tr>
<tr>
<td>2.</td>
<td>Image of offender recorded each time Remote Breath used by offender</td>
</tr>
<tr>
<td>3.</td>
<td>Image of offender recorded analyzed by AFI</td>
</tr>
<tr>
<td>4.</td>
<td>AFI automatically identifies whether image is of offender; only failed tests flagged for manual review</td>
</tr>
</tbody>
</table>

![Images of face with AFI analysis](image_url)