Vivametrica: Disrupting Life Insurance

Wearables – Mobile – Rapid Illness and Mortality Prediction

Dr. Christy Lane, PhD, Co-CEO and Founder

Disrupting Life Insurance

We use **mobile & wearable devices**, Artificial Intelligence, and scientifically validated models to accurately predict **mortality and disease risk**

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Technology from a Team of World-Leading Scientists

Rick Hu, MD
CEO/Founder

Orthopaedic Spine Surgeon

25 Years Population Health Researcher, Administrator, Entrepreneur

Christy Lane, PhD
Founder/Co-CEO

Exercise Scientist

Expert in Physical Activity and Health Assessment. Award winning researcher at Stanford and Mt. Royal University

Matt Smuck, MD
Co-Founder/ Director Research

Director of Stanford Wearable Health Lab

Chief of Rehabilitation Medicine, Stanford University

UNIVERSITY OF CALGARY

MOUNT ROYAL UNIVERSITY

STANFORD UNIVERSITY

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Backed by Science from the Stanford Wearable Health Lab

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Data

Largest Population Based Dataset
1,000,000+ unique individuals
>30 years

- Research-grade wearable data
- Clinician confirmed health & illness status
- Blood biomarkers
- Physical examination characteristics
- >30-year mortality data

Insurance Insights

Proprietary Analysis methods
Deep Content Expertise
Award winning researchers

Pat. Pending.

Stanford MEDICINE

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The Problem:

Underwriting of Life Insurance Applications has NOT changed in the past 40+ years

Current Insurance Application Process

Inaccurate	Inconvenient	Expensive	Intrusive
> 30% Policies misquoted	2 - 6 weeks delay	$ 250 – 300 Per Application	Blood Test/ Urine Test/ Questionnaire/ Medical

Declining Policies and Revenue – Aggressive Competition – New Entrants

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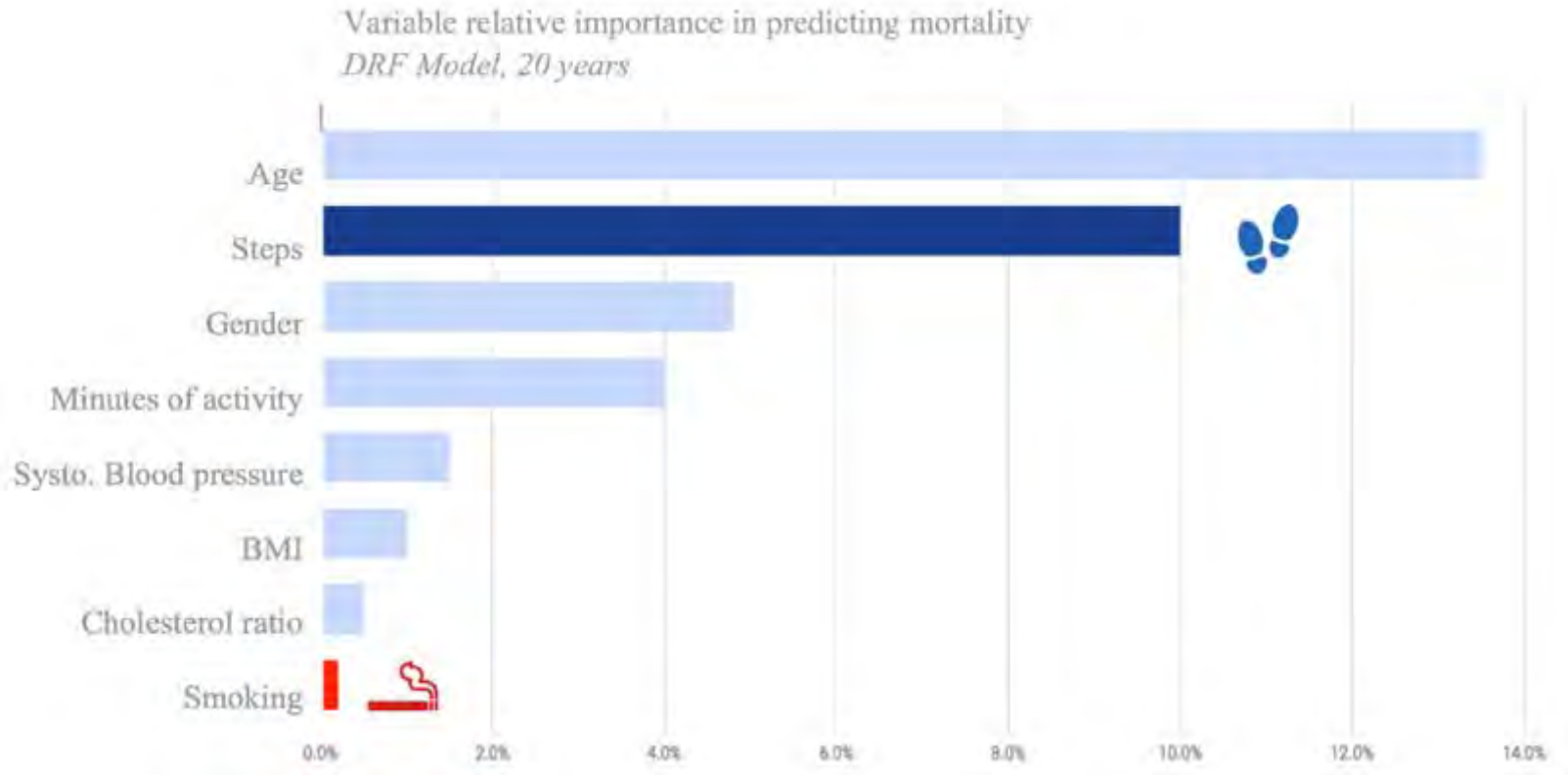
The new age of Insurance is mobile

Why **NEW** data matters



Activity metrics

10X

More Predictive of Mortality than Smoking

Sitting <u>really is</u> the new smoking

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Physical Activity and Risk Prediction

Fewer than ½ of 50 yr. old sedentary people will survive more than 10 years

The future depends on what you do today

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The Solution: Analysis with Mobile Physical Activity Data

More Accurate	Convenient	Inexpensive	Unobtrusive
Direct comparison to Traditional UW	One Click Issuance	Scalable	No Fluids No Paramedical exam required

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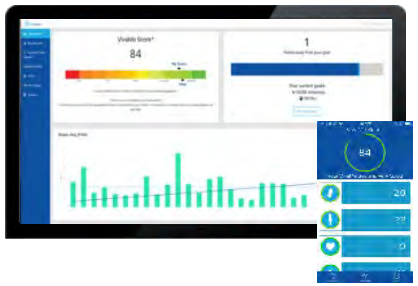
Personal + sensor data
(wearable/smartphone)

Vivametrica Proprietary Analysis

Accurate, Rapid, Illness and Mortality Prediction
(e.g. Insurance Underwriting)



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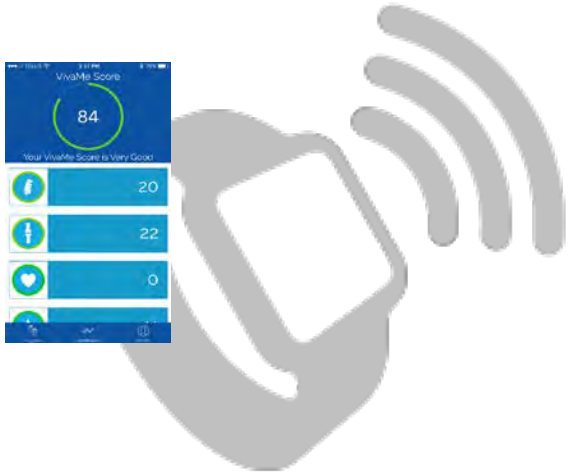
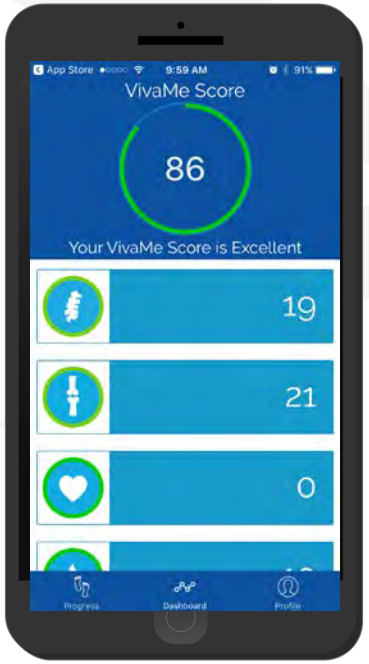
The Technology: Vivametrica Health Risk Assessment



User generated digital biomarkers

Proprietary Analysis



User Interface (Engagement Platform)

NO FLUIDS & NO MEDICAL EXAMINATION

Risk Assessment

BACK PAIN & ARTHRITIS

CARDIAC

LUNG

TYPE 2 DIABETES

MIND

AEROBIC FITNESS

HEALTH RISK ASSESSMENT

FINANCIAL CALUCLATORS

MORTALITY

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Risk Assessment

SMOKING PREDICTOR

NUTRITION

DISABILITY

REINSURER CONFIRMATION OF ANALYSIS MODELS

#1 Munich RE

#5 SCOR The Art & Science of Risk

Independent reviews of Vivametrica analysis and confirms accuracy of UW model

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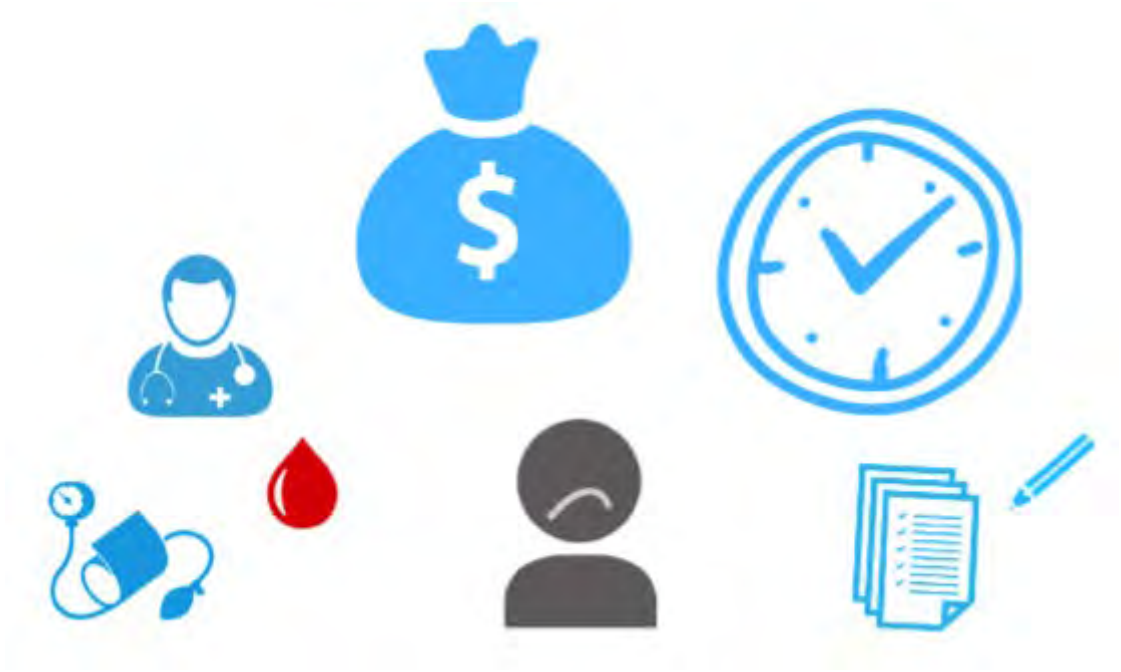
Comparison

Traditional Underwriting



Requires doctor visit, blood draw, blood pressure measurement and lengthy questionnaire

Vivametrica Health Risk Assessment

Low touch, faster, less expensive

Risk assessment based on age, gender, BMI, waist size and 7 days of wearable data (physical activity & sleep)

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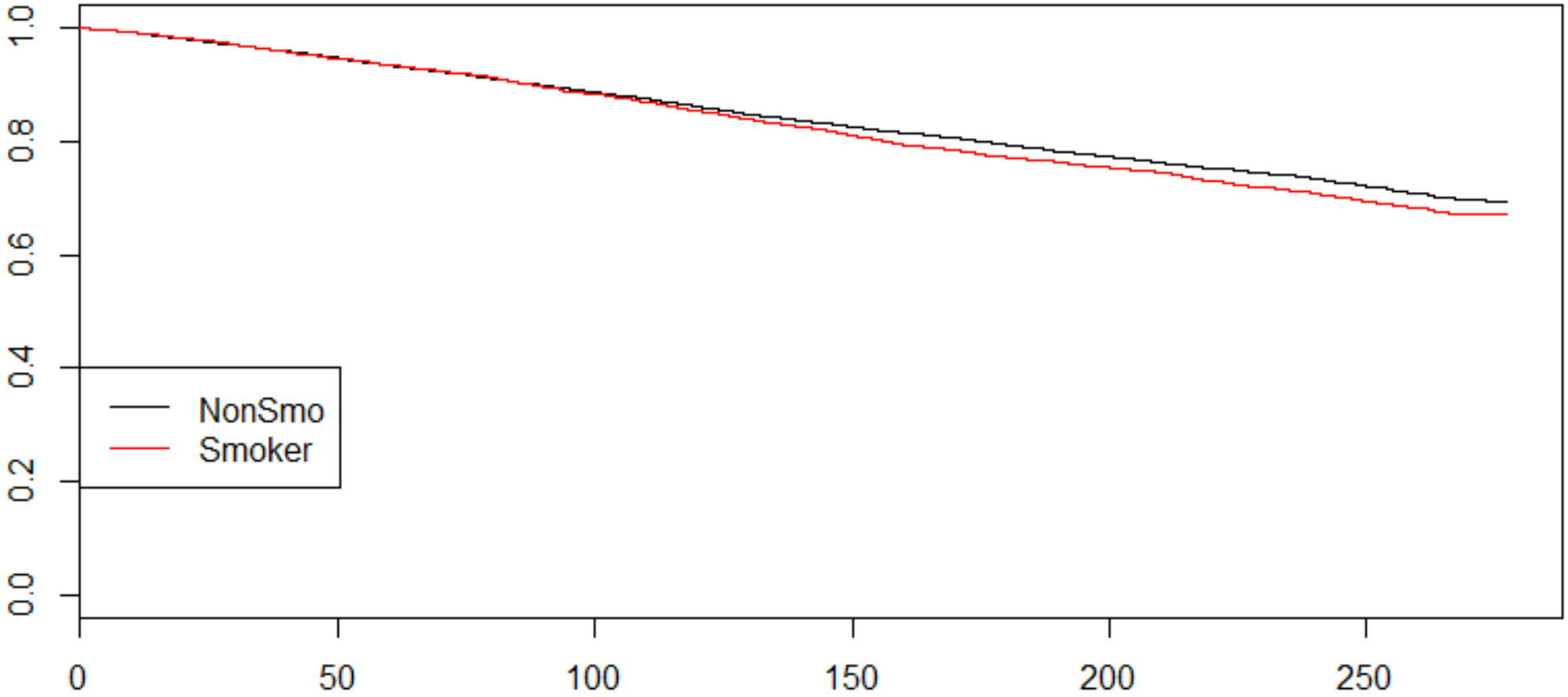
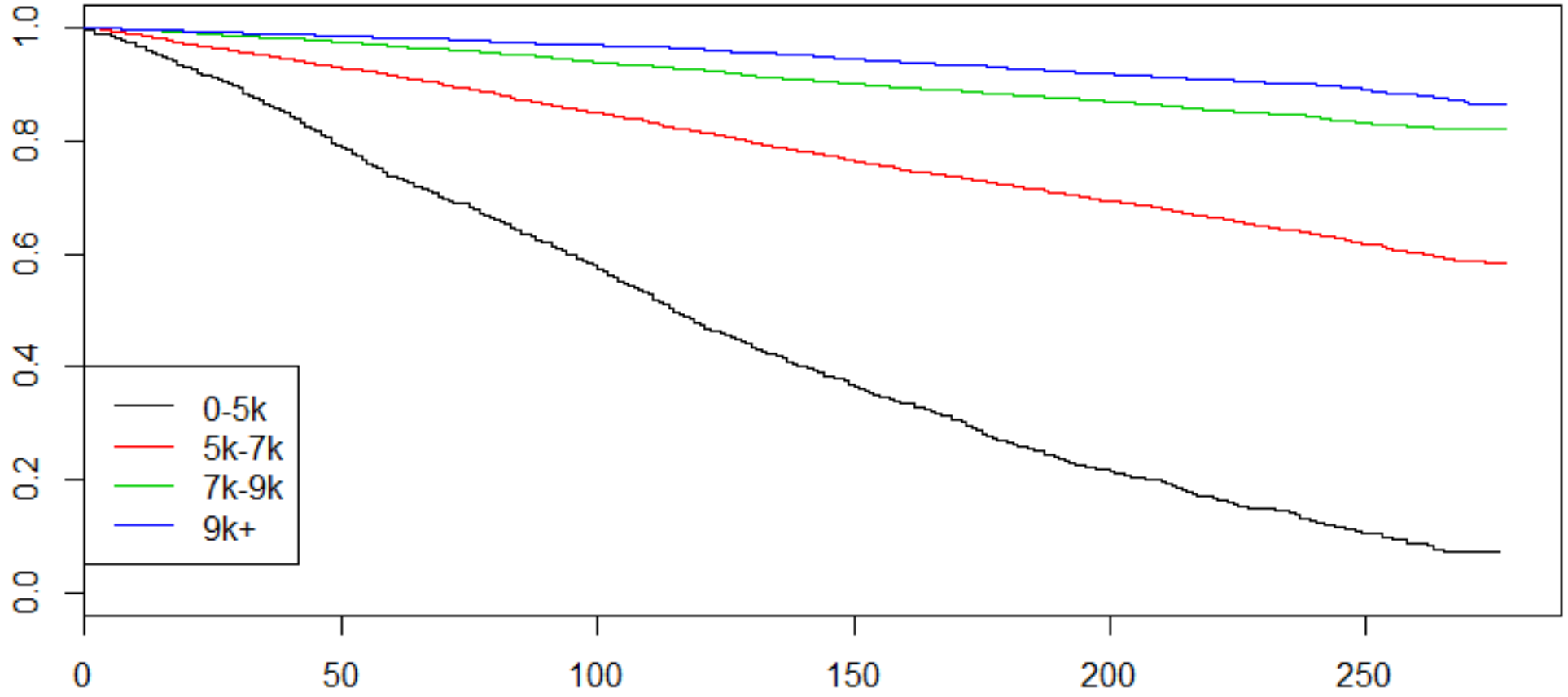
20 year survival curve for smoking



Survival Curve for Steps per Day



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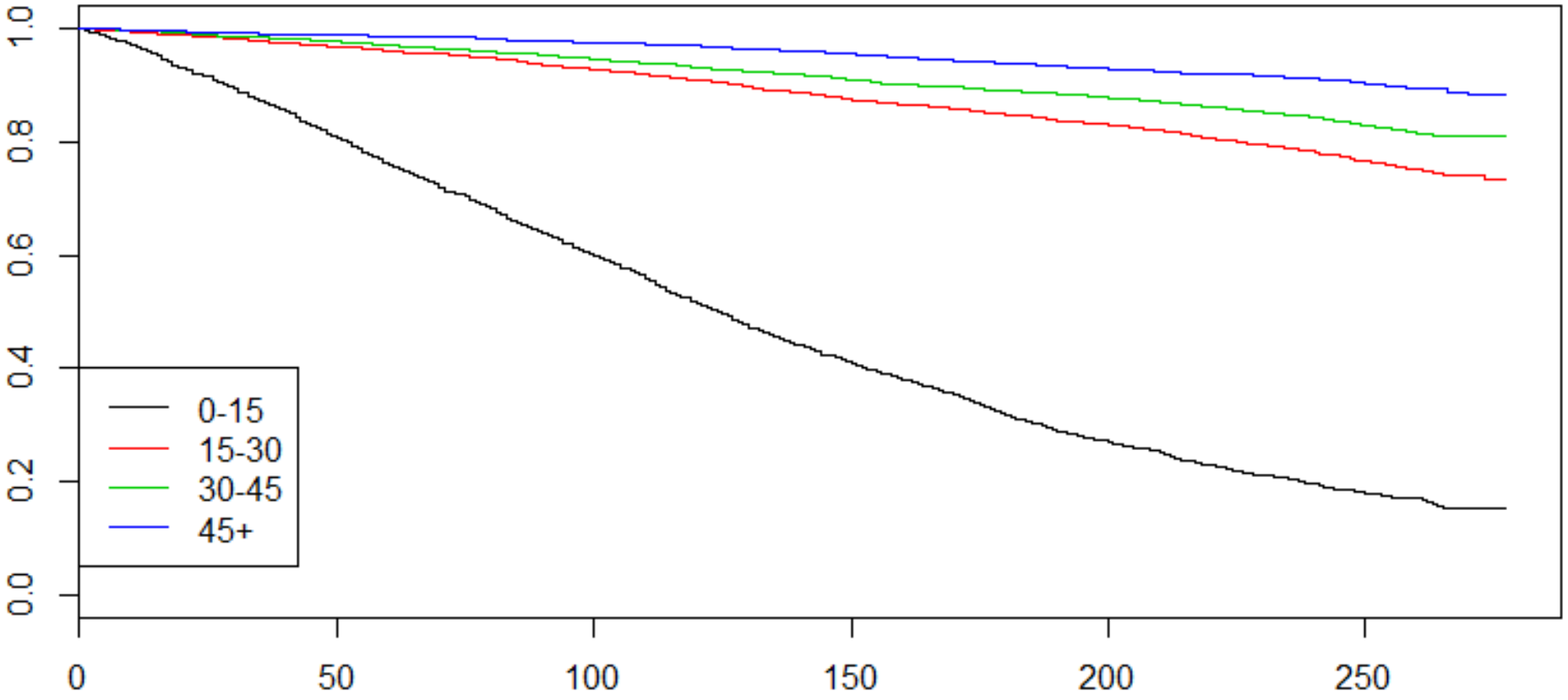
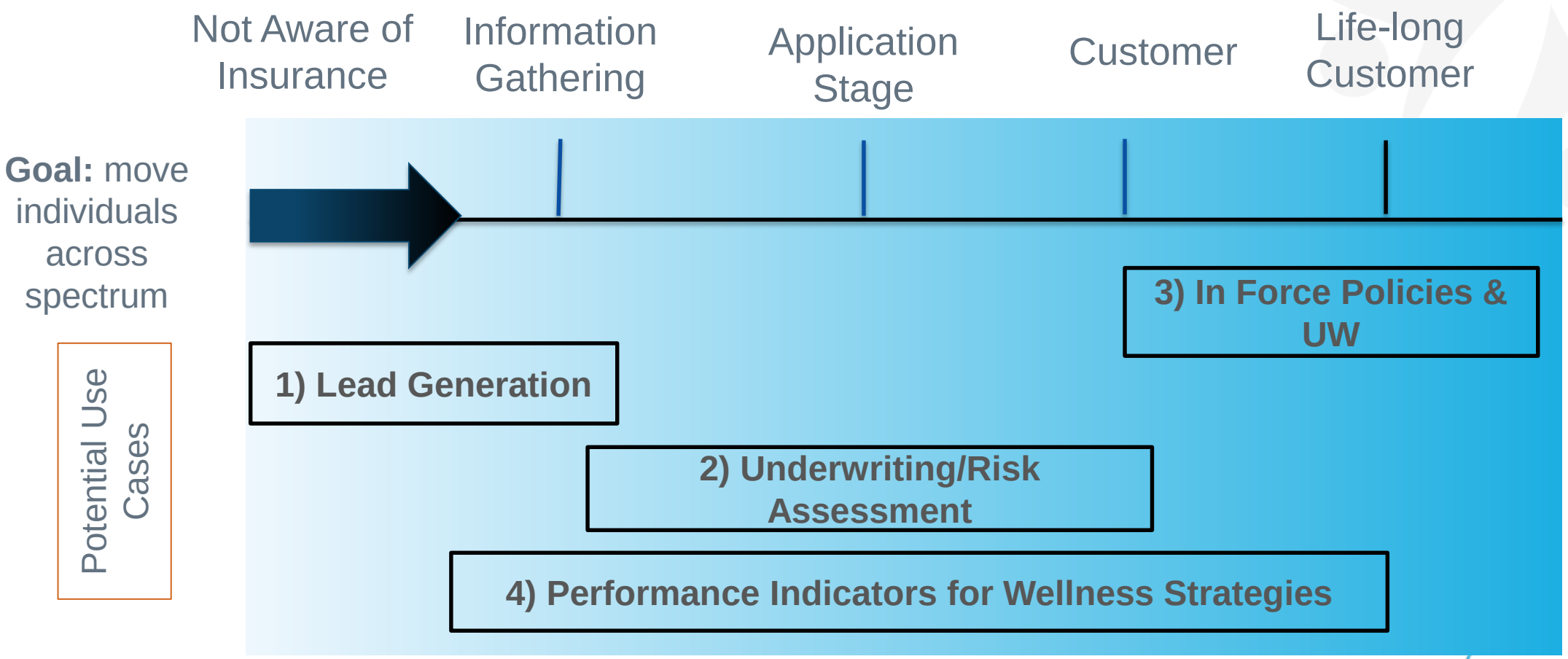
Survival Curve for Moderate – Vigorous Activity



Insurance Prospect and Customer Spectrum



Use Case: Lead Generation

User Data

Competition for User Data

Monetization for Users

Insurance Issuance

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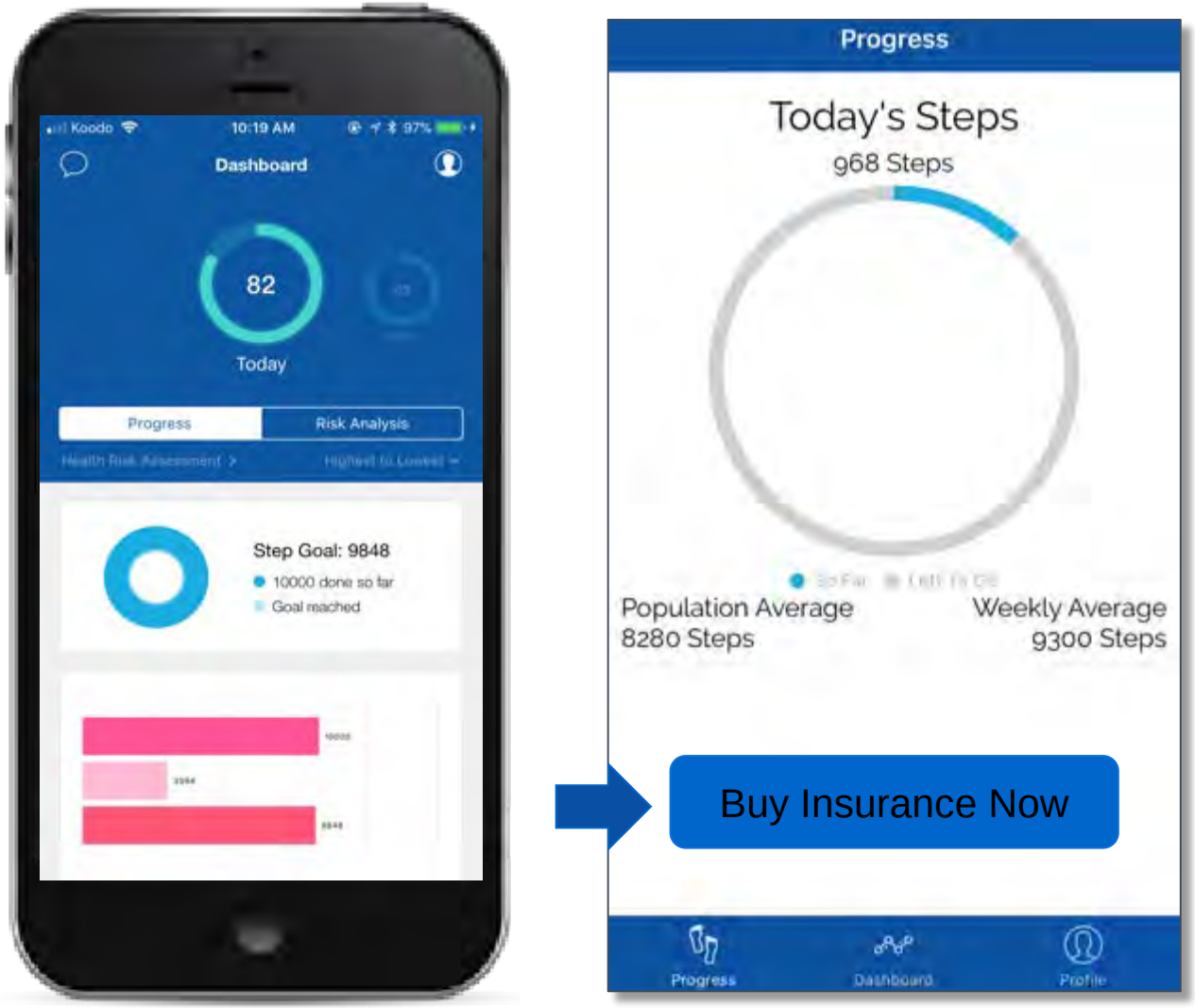
Use Case: Underwriting



- Digital Underwriting
- Instant Policies
- Benchmarked to Population
- Real time Dashboard
- Directed User Engagement

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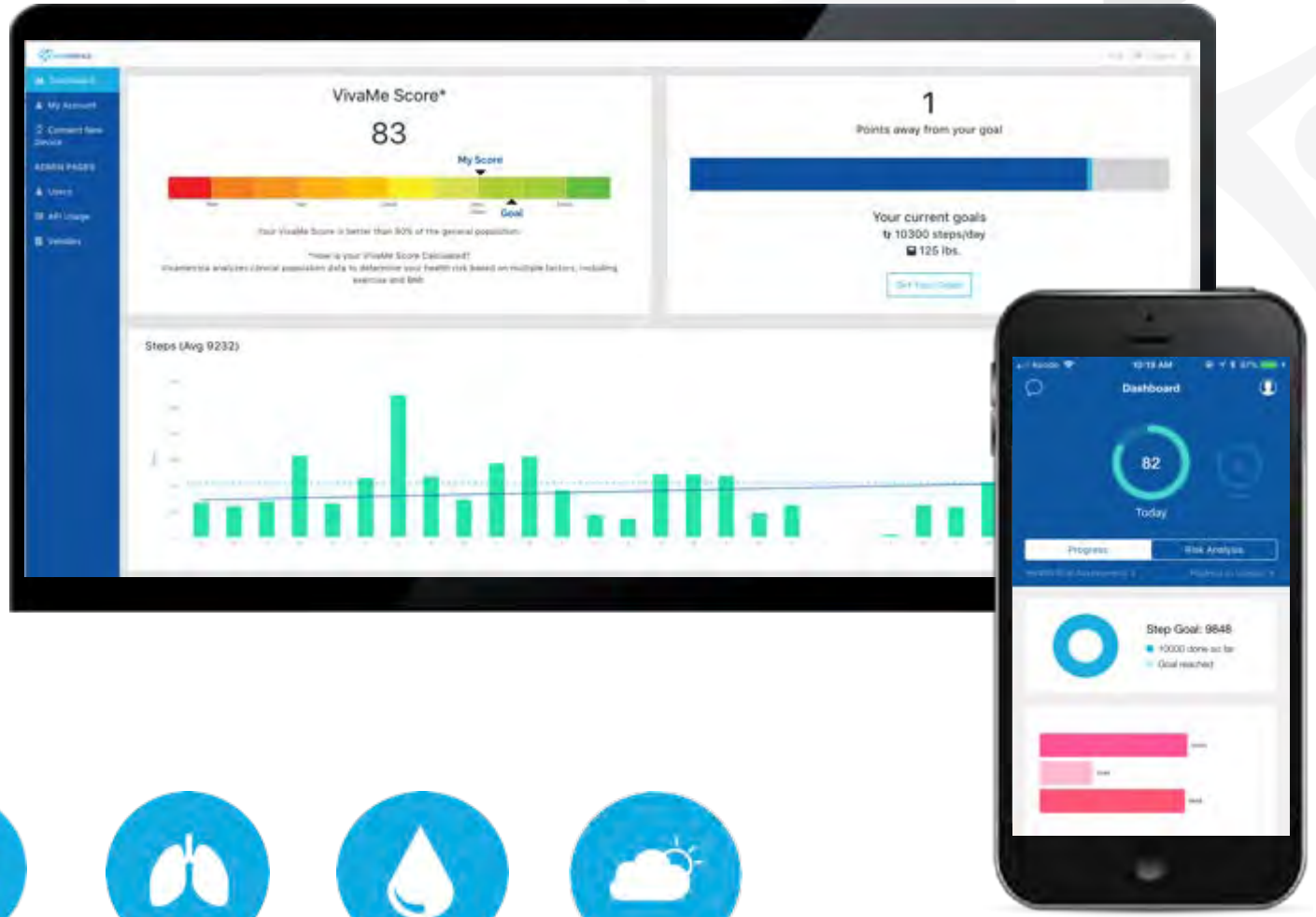
Use Case: Wellness Strategy for Insurers

Improve Health & Improve Claims

- Health Snapshot
- Performance Indicators
- Outcome Assessments
- High Engagement
- Behavioral Change Tools



ARTHRITIS & BACK PAIN

CARDIAC

LUNG

TYPE II DIABETES

MIND

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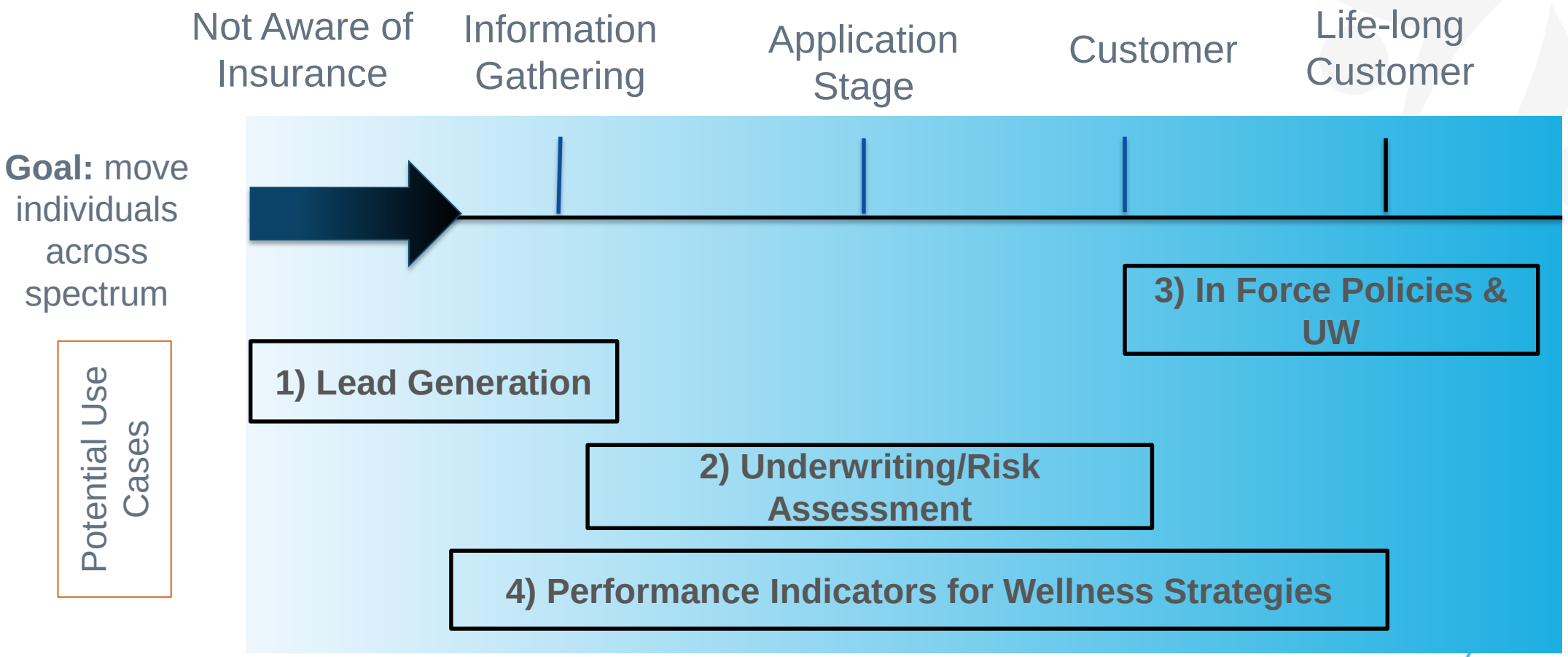
Insurance Prospect and Customer Spectrum



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Thank You

Christy@vivametrica.com

Innovation Seminar Insurtech

Brian Ro
07-31-18

Often Health Risks go Unnoticed

Substance Abuse

Smoking

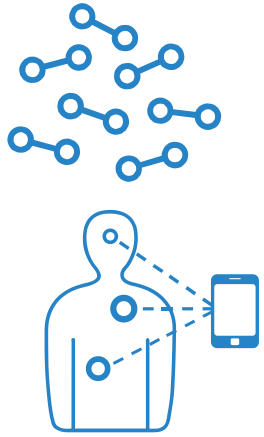
Apnea

Cardiac Arrhythmia

Mental Health

Wearables within Insurance

Biometric Data



User Data
(wearable device data, physiological status, symptoms, etc.)

Cloud Algorithm

Algorithm, inference engine, Equations, Analysis engine Model based logic, etc.

Reference Data Knowledge Base, Rules Criteria

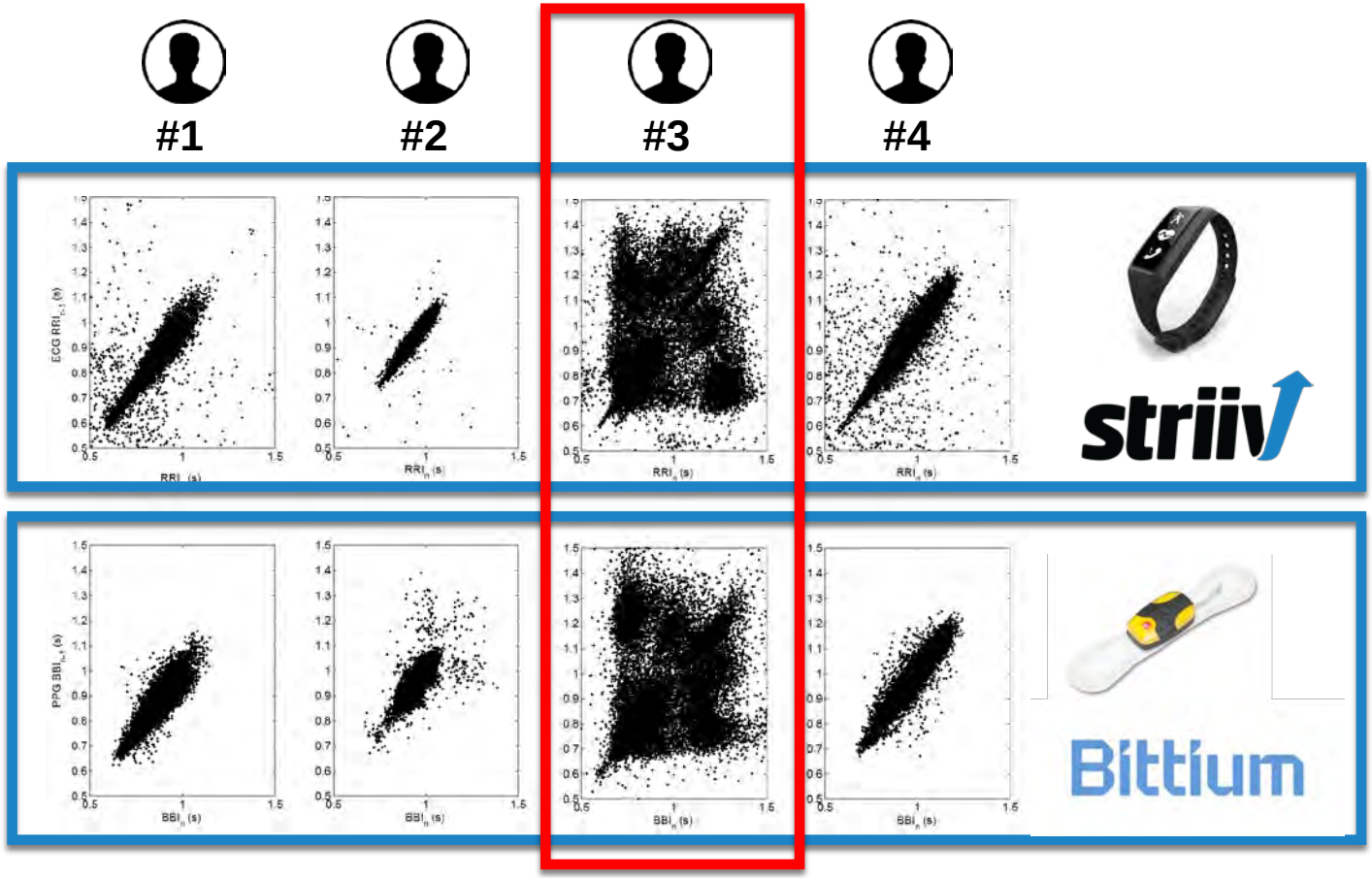
Outputs

Value prop: Wearables within Insurance

- Eliminate time and cost associated with fully underwritten products
- Identify costly hidden risks
- Mitigation of early claims
- Reduce funnel loss associated with medical exams
- Engage with the member in a personalized manner

Examples

Arrhythmia Detection



✓FDA 510K Cleared
ECG Monitor

Risk of Arrhythmia

Arrhythmia Detection

1 **Wear for 10 days**

2 **Drop it in a Mailbox**

3 **Receive Results in 1 wk**

4 **Share Report with Physician**

Simple. No Pairing. No Apps.

Insurance Engagement Program

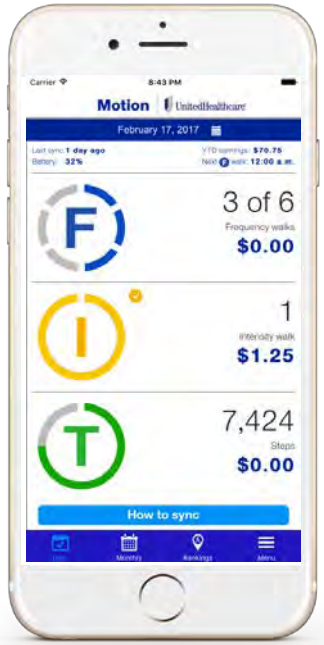
UnitedHealthcare MOTION

5 years & 100,000 Members Proved: Low-Premium + Activity based Deductible = Incentivized Behavior Change works.

Key Stats:

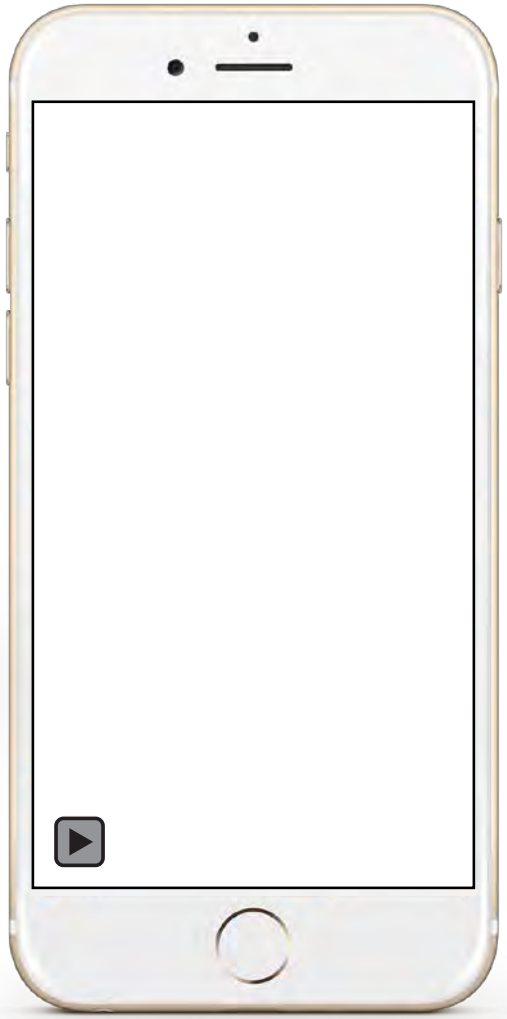
- **90%** annual retention among employers
- **65%** participants sustained engagement over 18 months
- **68%** of those eligible to participate registered for the program

Material Medical Cost Savings: 2:1 payback starting year one, even after paying member's activity-based deductible max.



United Healthcare

Pfizer’s BeLive Project



THE WALL STREET JOURNAL.

CIO JOURNAL.

Pfizer Builds Consumer Apps to Improve Patient Care

Mobile, wearable technologies may lead to increased revenue as patients adhere to treatment plans

By **KIM S. NASH**

Feb 8, 2017 6:52 pm ET

"Early BeLive results show that 78% of patients who use the device are more likely to follow their doctor's advice to stick with the plan."

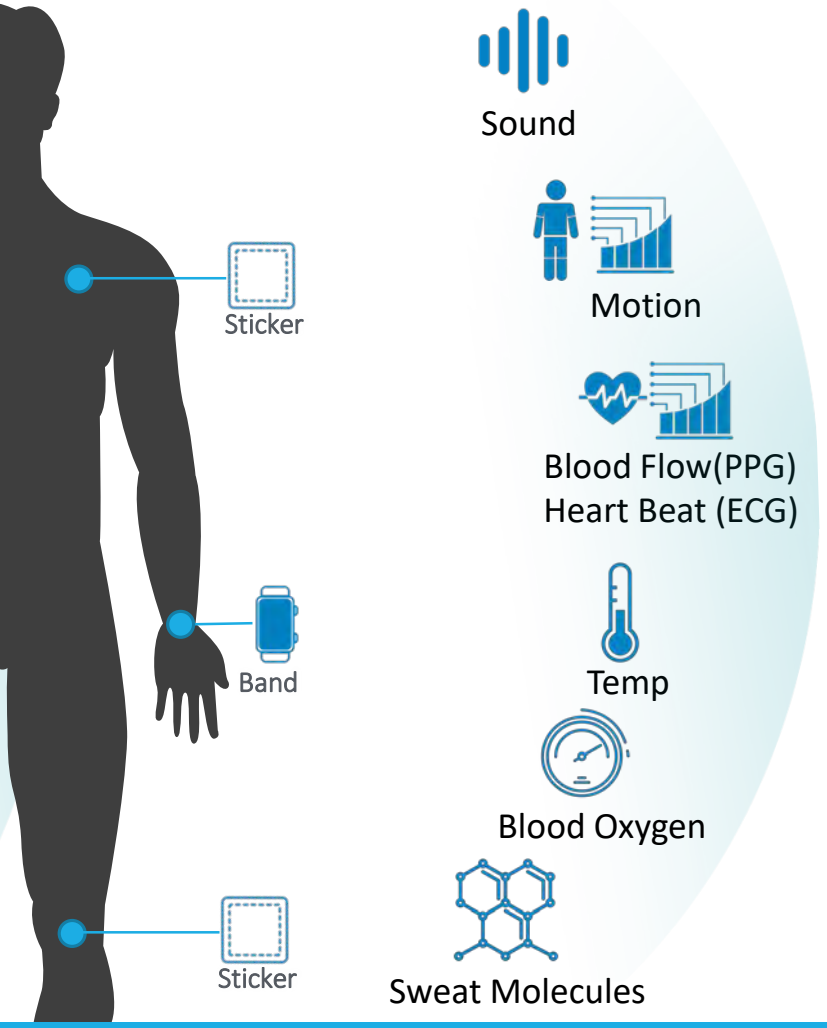
"In a pilot in Brazil, 76% of health care providers said BeLive enabled them to do more for their patients suffering from pain."

Jeff Keisling

Pfizer CIO

Roadmap

Sensor Data → Algorithms → Intelligence



Sound

Motion

Blood Flow(PPG)
Heart Beat (ECG)

Temp

Blood Oxygen

Sweat Molecules

Fever/Infection

Apnea/OSA

Arrhythmia

CHF

Depression

Respiration

Vomiting

Sneezing

Sniffles

Coughing

Incline

Gait

Walk/Run

Fall

Sleep

Identity

Nocturia

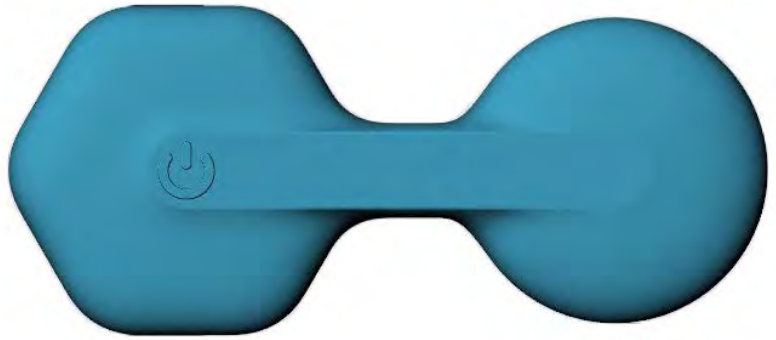
Alcohol

Medication Adherence

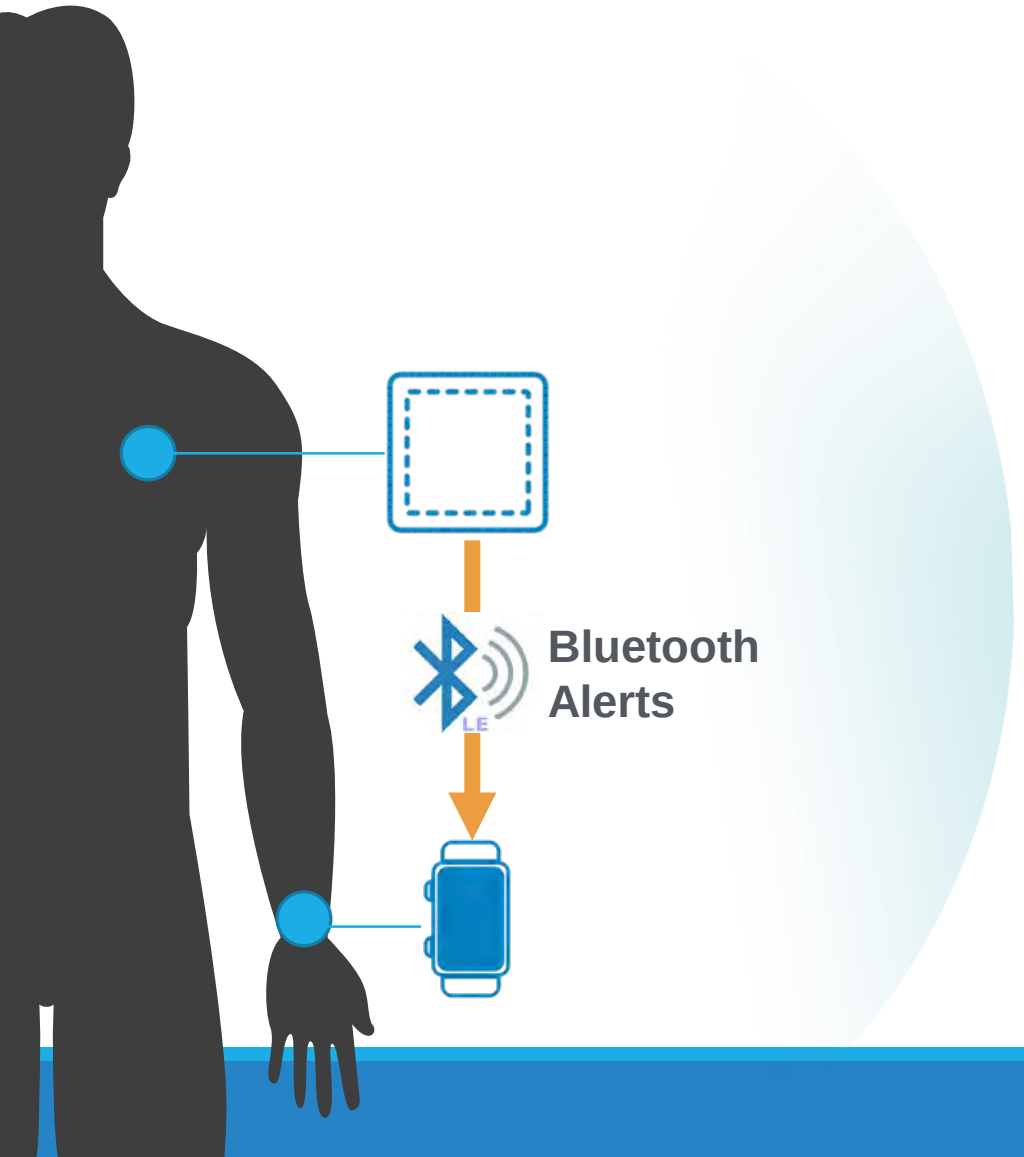
Dehydration

BIO STICKER

- Medical grade FDA 510K
- Multiple biometric sensors
- Low cost, single-use sticker
- Wireless with battery life of 30 – 45 days
- Effortless passive monitoring



Compliance & Engagement Innovation



Real-Time Wristband Alerts Triggered by Sticker via Bluetooth

Thank You

Brian Ro
Director of Strategic Partnerships
brianro@striiv.com

Striiv History

Track Record & Team

Shipped over $50M (USD) revenue in last 4 years.

High Volume Scale to United Healthcare & Pfizer

Leadership: Stanford & Caltech (Across multiple Startups)

Screening & Validation Programs

Cardiac

Activity

Works Out of the Box

Customers: Healthcare

UnitedHealthcare

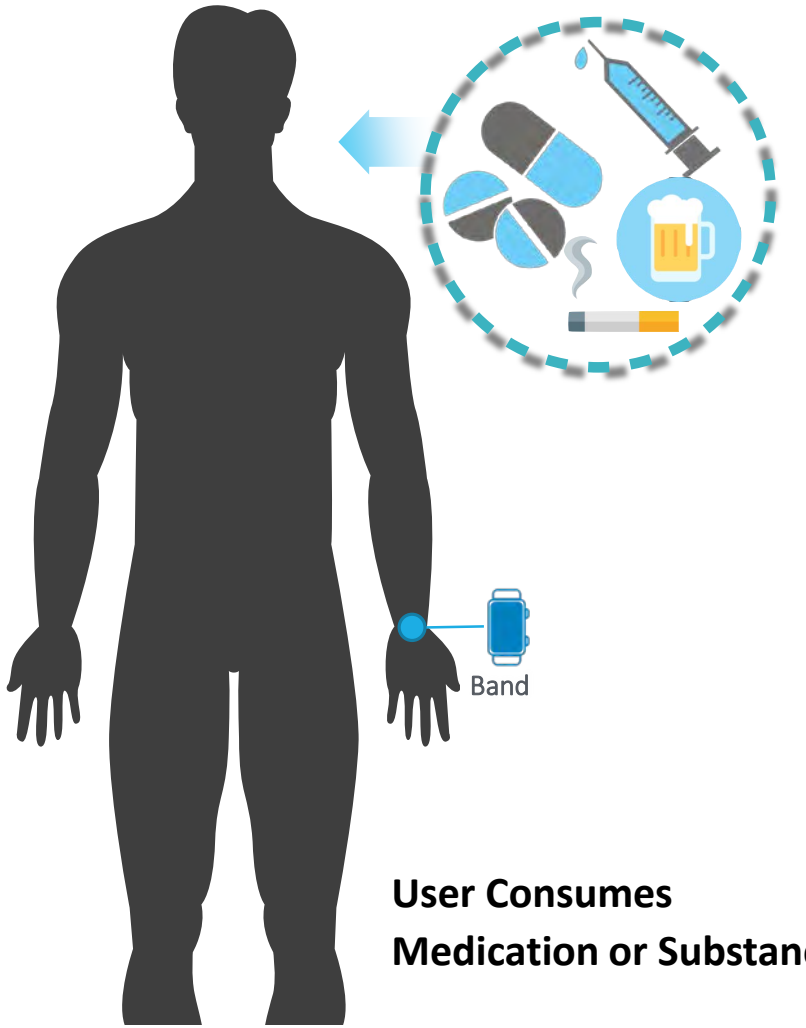
Pfizer

QUALCOMM LIFE
a Qualcomm company

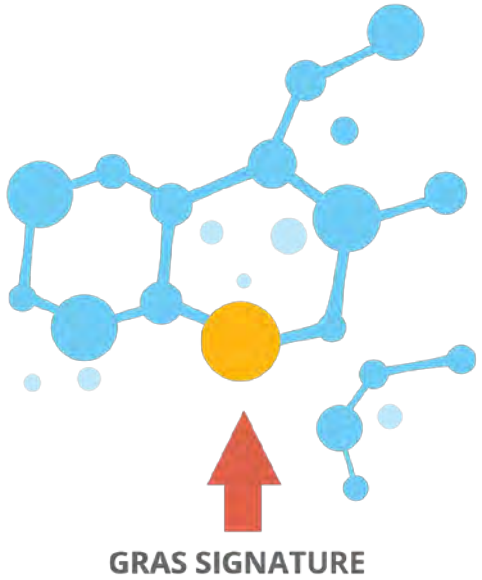
Walgreens

Backup

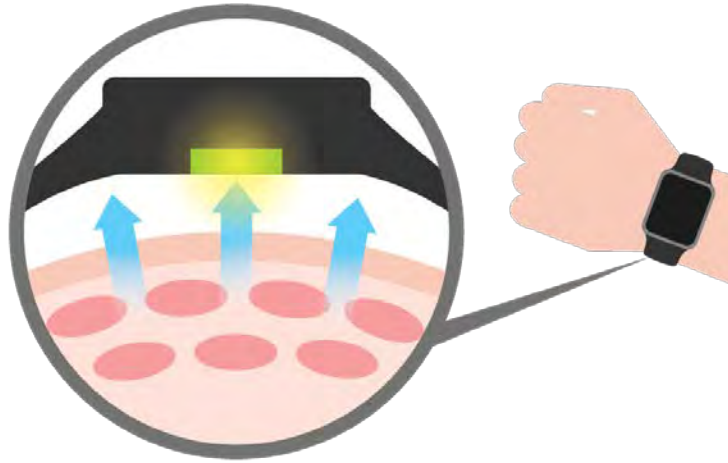
Sweat Vapor Technology



User Consumes Medication or Substance



Sensors are tuned to look for specific compounds



Molecules in Sweat Vapor detected by Striiv Device

Value prop: Wearables within Insurance

Biometric Data

- Detection of Afib & Apnea
- Assessment of mental health
  - Depression & chronic stress
- Measurement of heart rate variability, resting heart rate, sleep

Lifestyle Data

- Detection of drinking and smoking
- Medication adherence
- General environment classifiers
  - Violence, external stress, social interactions, etc.

Authentication

- User continuity can be assured via several data points:
  - Gait analysis, heart beat morphology
  - IoT proximities, voice validation