



November 14, 2018



**Provide overview on why GDAHA
member hospitals invested in
innovation**

**How innovation initiative was
structured & funded**

Iteration of innovation process

Tangible outcomes & lessons learned

Discussion



GDAHA
GREATER DAYTON AREA
HOSPITAL ASSOCIATION

The Link to Quality Care



WRIGHT-PATTERSON AFB





DELPHI

mead[®]



our economic impact

Fact: The hospital industry's total economic impact in the Dayton region is greater than the economic impact of Wright-Patterson Air Force Base.

our employment impact



TOTAL ECONOMIC IMPACT

The region's hospitals continue to have a significant impact on the local economy.

Hospitals in the 11 county region surrounding Dayton, Ohio provided a \$6.77 billion economic impact in 2008, which represents a \$556 million increase in the hospital industry's economic impact from 2005.



EMPLOYMENT IMPACT

	TYPE OF IMPACT			TOTAL
	Hospital Only	Nursing & Personal Care	Medical & Health Services	
Direct Employment	28,579	612	2,106	31,297
Indirect Employment	24,699	300	1,300	26,299
Operating Expenditures Impact	53,278	912	3,406	57,596
Capital Expenditures Impact	5,517	24	2	5,543
Total Impact	58,795	936	3,408	63,139

IMPACT ON EMPLOYMENT

In addition to the significant economic impact, hospitals in the Dayton region directly employ 31,297 individuals in the hospital environment, nursing and personal care facilities, and medical and health services facilities. In comparison with 2005, direct hospital employment was 3.7 percent higher in 2008.

The total employment impact of the region's hospitals provided 63,139 jobs in our communities, which include direct, indirect, and capital investments, representing a 14 percent increase from 2005 to 2008.

* Economic Impact Analysis, Wright-Patterson Air Force Base, 2008

The data compiled in this report was prepared by the University of Cincinnati Economics Center for Education & Research.

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35,843 employees

DAYTON BUSINESS JOURNAL

5 of the top 20 employers are hospitals/hospital networks

2 of the top 3 employers are hospitals/hospital networks

**39% of the employees of the top 20 employers
directly work for hospitals/networks**

Wright- Patterson Air Force Base Medical Center 88th Medical Group





★
TOLEDO

★
CLEVELAND

★
INDIANAPOLIS

★
COLUMBUS

★
DAYTON

★
CINCINNATI

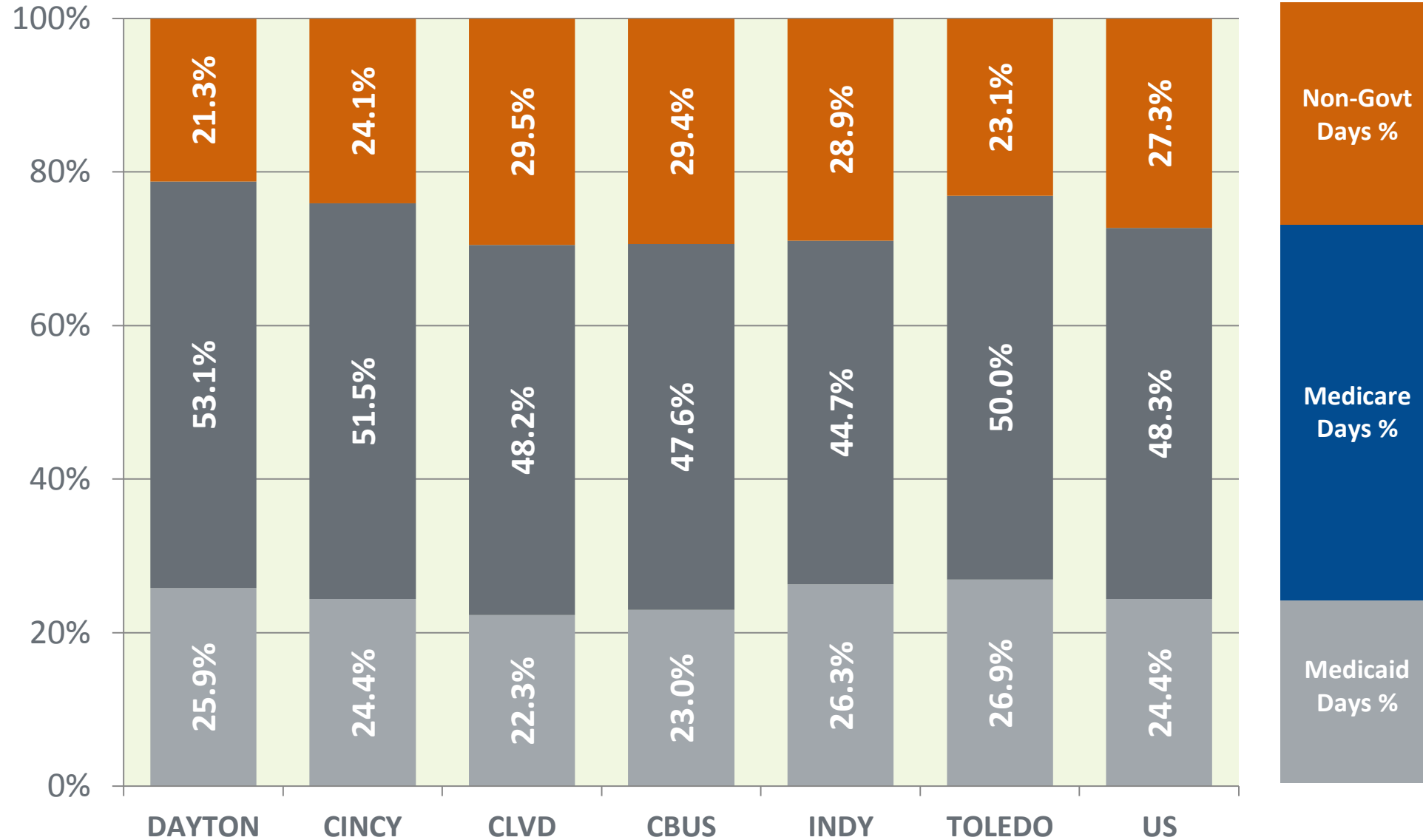


CHALLENGING PAYER MIX

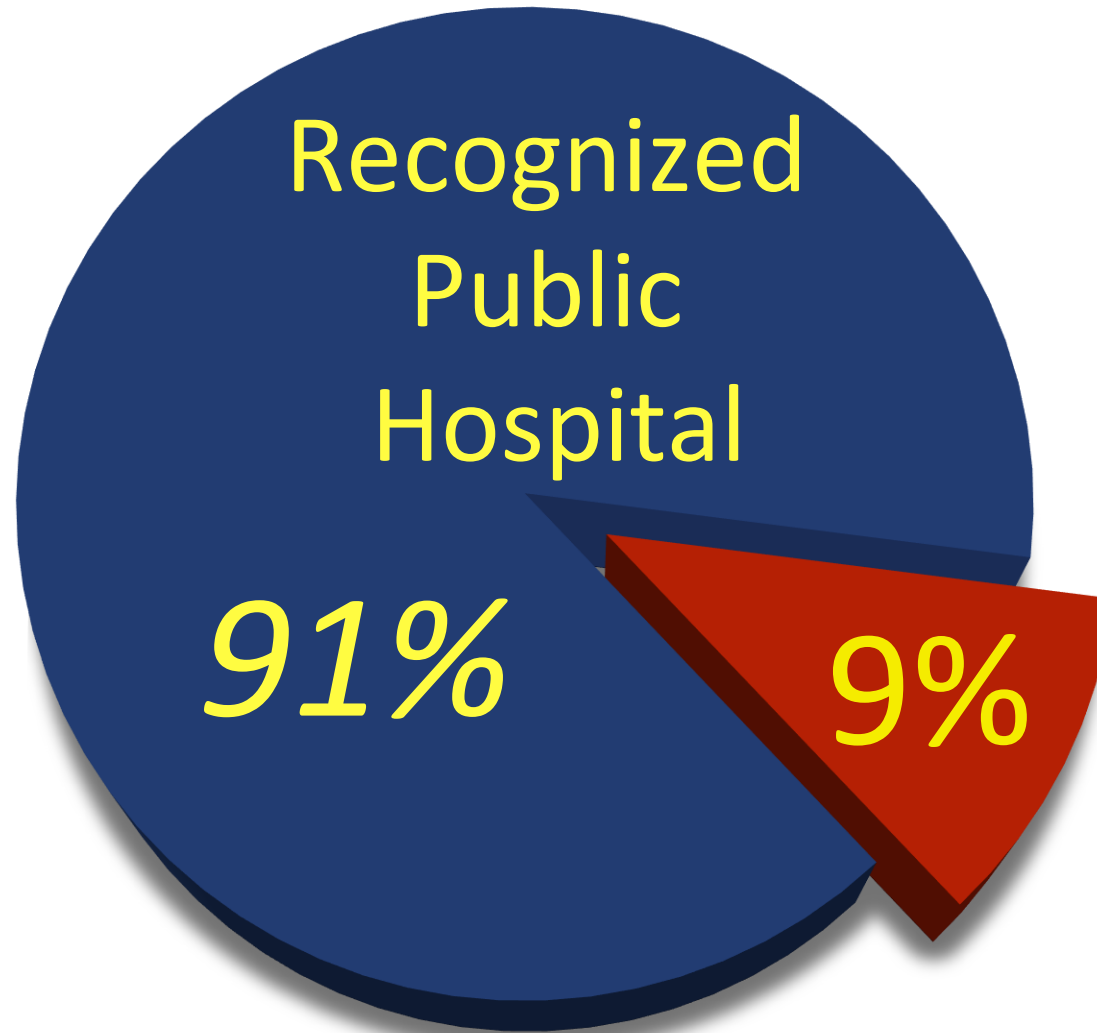
Payer Mix

Measured by: Patient Day Percentage

Dayton continues to have the highest level of government reimbursed patient days. Higher government payer mix creates upward price pressure to recover payment deficiencies.



Top 100 Metropolitan Regions





Real Impacts

Recruitment/Retention of Specialists & Sub-Specialists

Flow of Research Resources

- State Grants
- Federal Grants

Ohio Medical Corridor/Opioid Funding challenges

Mental & Behavioral Health

**Lower Medicaid Reimbursement
compared to other regions**



KALEIDOSCOPE



Kaleidoscope

A design and innovation firm with five locations and more than 80 employees.

We create products and experiences that grow businesses and improve lives by leveraging our expertise at the intersection of consumer insights, technology and health and wellness.

We call this Purpose Driven Innovation.™



Trusted Global Brands Trust Us

Our clients range across markets: fast moving consumer goods, healthcare & medical, electronics & high-tech, transportation and government.

Many of these client partnerships are longstanding dating back the late 90's.

TOSHIBA

Johnson & Johnson

Hill-Rom.

TARGET

DELL™

Whirlpool CORPORATION

smith&nephew

Microsoft

P&G

MOTOROLA

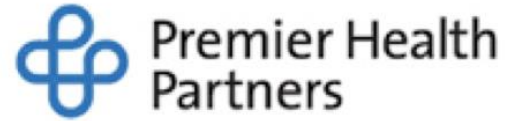
stryker

MARS

Abbott
A Promise for Life

Ford

Value to Hospital Investors



1. leverage the hospitals' intellectual capital and economic/employment impacts
2. foster innovation and in the Dayton region collaboration
3. enhance the regional medical research ecosystem
4. become a catalyst for meaningful & measurable business/economic development and venture capital in the Dayton region
5. provide a quantifiable return on the hospital investment



Investment & Structure

- For-profit with non-profit subsidiary
 - Spin-out multiple LLC
- \$6.5 million investment from three hospital networks over 3-years (*providing a 5 year funding runway*)
- *\$6.5 million in-kind from Kaleidoscope*
- 7-person board (4 hospital boards seats)
- 80% distributable revenue goes to hospitals until capitalization is paid off



3M



Baxter



stryker[®]





- Helping design better products through first-hand research



- Harnessing the power of data science to improve healthcare



- Delivering agile, cost-effective, end-to-end clinical trials

Diversified Pipeline

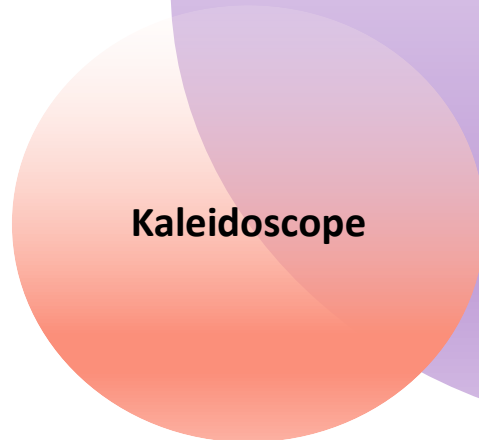
Identify hospital-owned
intellectual
property & opportunity



Healthcare leads
flow into Ascend



Kaleidoscope
relationship with
national clients



**Air Force Research
Lab - 711th Human
Performance Wing**

**AFRL/HPW
technology
application &
commercialization**

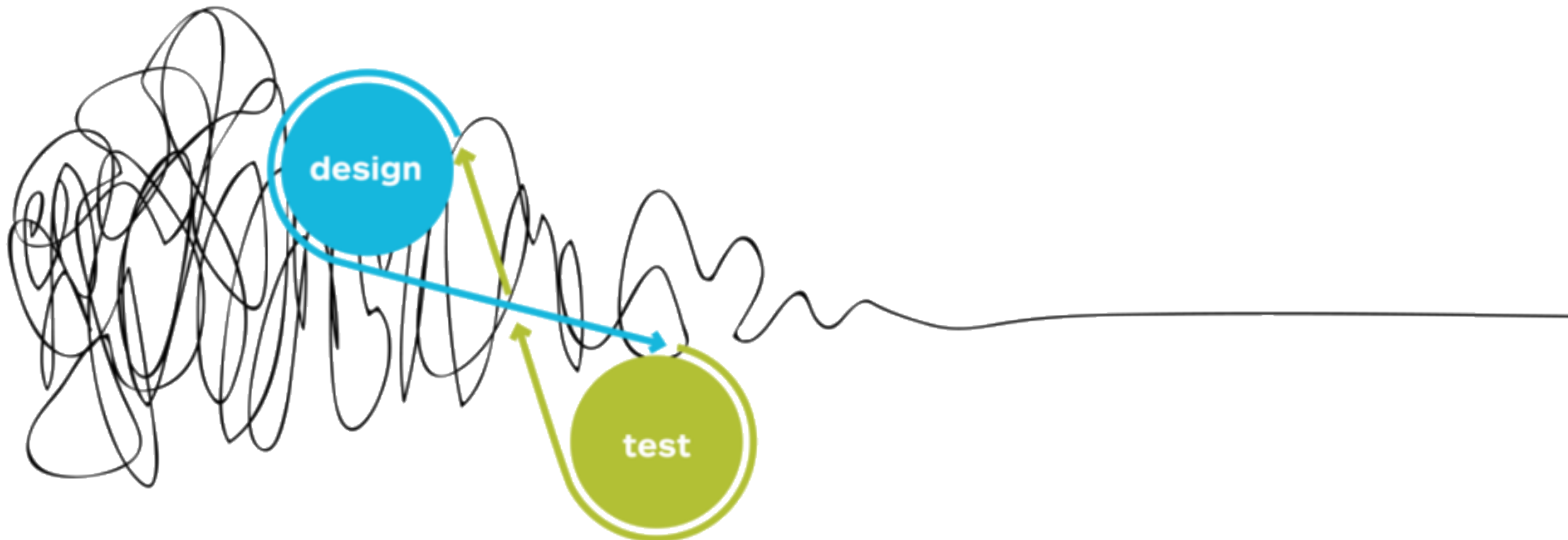
Common Intellectual Property Agreements





Embedded Scientist





Search → Execute

Transcranial Direct Current Stimulation (tDCS)

Business Need:

AFRL had previously collected some meaningful data based on their initial clinical studies, but prototypes were crude and not commercially viable. Kaleidoscope was asked to understand user needs, integrate technical requirements and create compelling product concepts.

Outcomes:

Our solution provided a vision for what tDCS can be in the future. *"Your team was professional yet laid back and easy to talk with. Our feedback was appreciated and incorporated. You took our design requirements to heart and satisfied them all."* – Dr. Andy McKinley, PI

Methods:

- Lab Interviews
- Product Requirements
- Concept Development
- Bread Board Models
- CAD Development
- Concept Refinement



ADAMHS Data Studies

Understanding the Montgomery County population

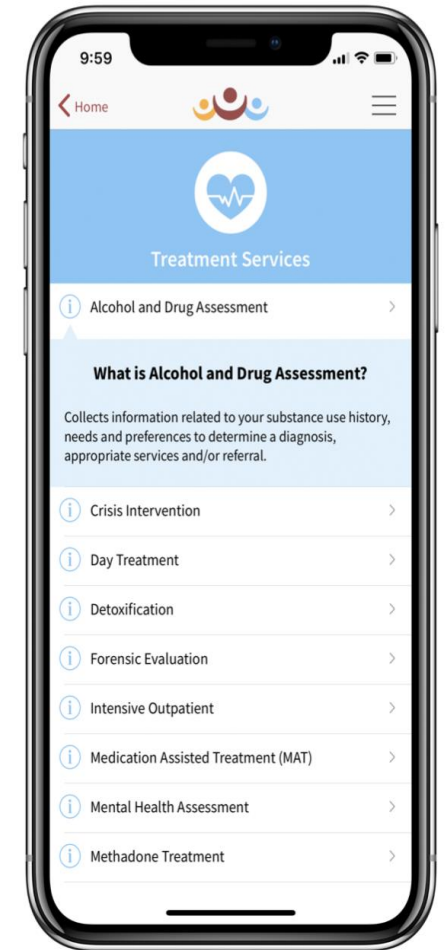
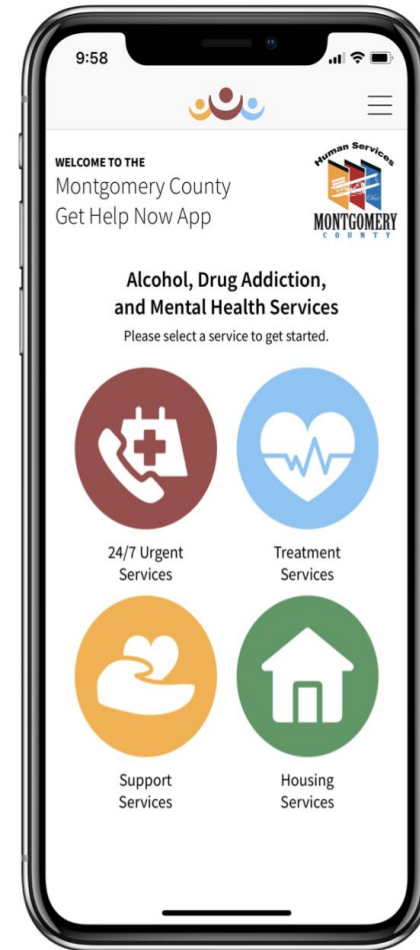
Over the past year, we've worked with ADAMHS to help understand and identify areas within the Montgomery County population that struggle with opioid addiction. These reports have provided the use-case for other projects such as GetHelpNow and the Overdose/Suicide Notification Systems.



Get Help Now App

Providing help for addiction and mental health patients

After a successful 2018 launch, the Get Help Now app has been downloaded over 1,000 times, has an active monthly user base of 40% and has connected users more than 2,000 times to provider contact information.



AFRL - Fitness Algorithm







BATDOK-Licensing Tech from AFRL

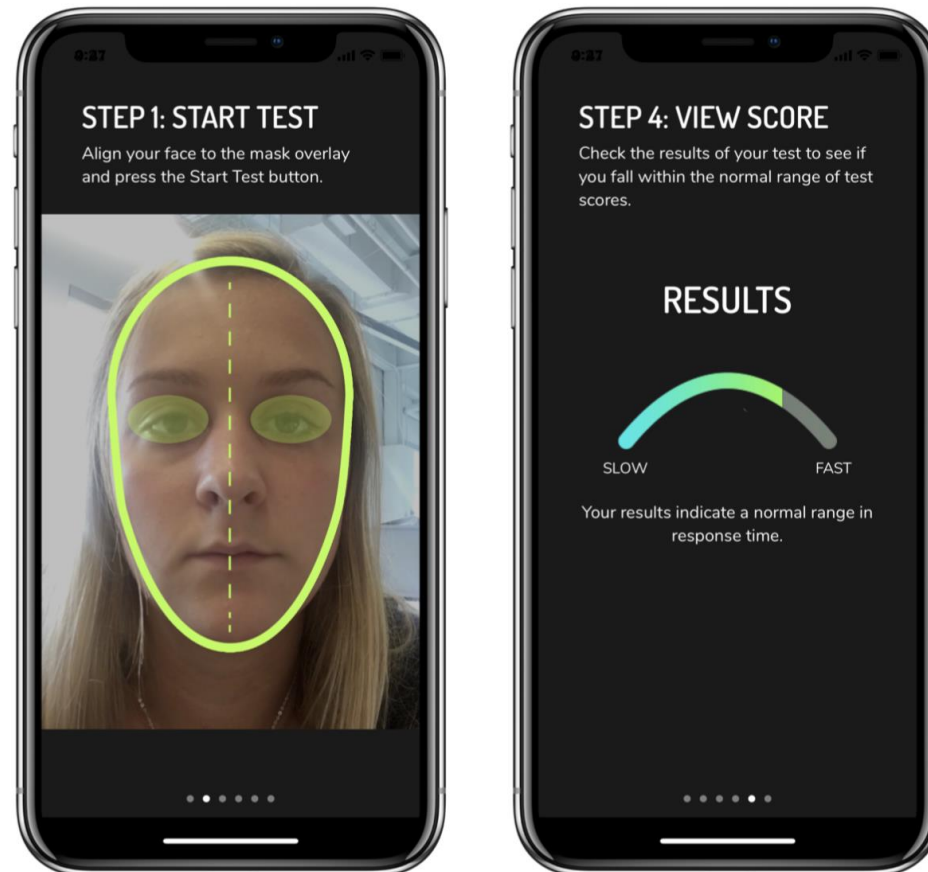


AFRL
THE AIR FORCE RESEARCH LABORATORY



Vye: Mobile Ocular Cognitive Test

Early detection of neurological conditions





Traumatic
BRAIN INJURY



Your first step in concussion assessment





Projects in Development

- Tamper proof PICC line
- Scoliosis implant
- Female urinal
- Lead apron redesign
- IV pole clamp
- Automated heating & cooling blanket
- Biometric sensors – hot flashes



ASCEND
INNOVATIONS



GDAHA
GREATER DAYTON AREA
HOSPITAL ASSOCIATION

The Link to Quality Care

TIME

THE OPIOID DIARIES

Photographs by
JAMES NACHTWEY





The Washington Post



The New York Times

Dayton:

highest per capita overdose
death rate of any U.S. city





Chad Colwell, 32, being revived by EMS workers after overdosing in his truck in Miamisburg, Ohio, on July 4, 2017. He says this, his fourth overdose, led him to seek treatment



Rachel Hoffman, who says she was six months pregnant when this photo was taken in Dayton, Ohio, on July 2, 2017. After prematurely giving birth, she lost custody of her newborn girl. Hoffman, 35, says she is now in recovery



Roger McLarran, 61, being transferred from a bedsheet to a stretcher after overdosing in his sister's Dayton, Ohio, home on July 2, 2017



Christopher Short, who died from an accidental fentanyl overdose in Dayton, Ohio, on July 23, 2017.





Opioid News
coverage



The Washington Post



The New York Times

The unmet needs in the opioid crisis



AVAILABILITY

Treatment is either not available or evidence based care is not implemented

FRAGMENTATION

Scarcity of services and gaps in services lead to treatment failures

DATA

Real-time data are required to make care more precise and personalized

FOCUS

Addiction is stigmatized and current care is disease-centered rather than person-centered

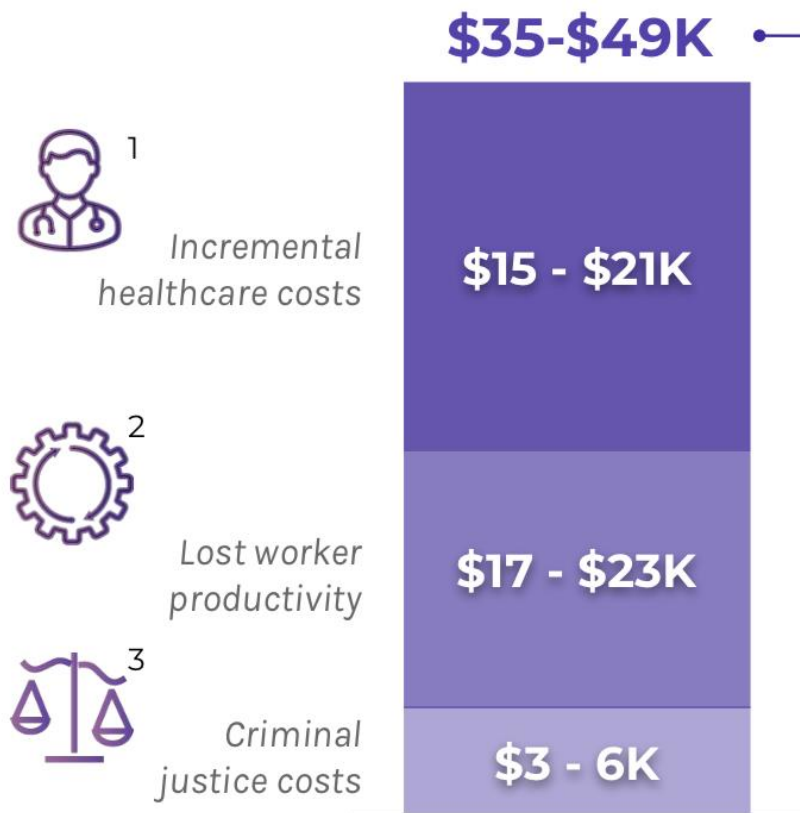
DURATION

Minimal knowledge about long-term outcomes




Estimated \$30-50k societal cost per opioid abuser annually

Total addressable savings opportunity of up to **\$0.6-0.8B** in Montgomery county alone

SOCIETAL COSTS PER OPIOID ABUSER PER YEAR, 2016



EST. TOTAL OPPORTUNITY BY GEOGRAPHY (DIRECTIONAL²)

	Est. # of opioid abusers	Implied total addr. opportunity/yr
 <p>US</p>	1.9M (0.6%) ¹	\$68-95B
 <p>OH</p>	200k (1.7%) ²	\$7-10B⁴
 <p>Montgomery County³</p>	17k (3.2%) ²	\$0.6-0.8B

Local, state, and federal stakeholder engagement

“The complexity of the opioid crisis requires medical, legislative, behavioral, educational, and legal changes, and it requires that these changes be made in coordination with each other, at the same time.”

- HEALTH AFFAIRS

HEALTH SYSTEMS

Premier Health System
Kettering Health System
Dayton Children’s Hospital
Samaritan Behavioral Health,
Greater Dayton Area Hospital
Association

PAYORS & FUNDERS

CareSource
Anthem
Ohio Department of Medicaid
National Institute of Drug Abuse
Substance Abuse and Mental
Health Association

PUBLIC SAFETY

Ohio Department of Public Safety
Dayton Chief of Police
Ohio Department of Corrections

CITY & COUNTY OFFICIALS

Dayton City Manager
Dayton City Planner
Montgomery County Drug Court
Montgomery County Job Center
Ohio Chief Information Officer
Ohio Specialized Dockets

BUSINESS LEADERS

Dayton Development Coalition
Dayton Business Committee
JobsOhio

PUBLIC HEALTH

Ohio and Dayton Departments
of Public Health
ADAMHS-county and state
Ohio Department of Health
Ohio Department of Jobs and
Family Services
Ohio Board of Pharmacy

ELECTED OFFICIALS

Ohio Governor, John Kasich
Dayton City Mayor, Nan Whaley
Ohio Representatives and Senators
Montgomery County Commissioner

ACADEMIC INSTITUTIONS

University of Dayton
Wright State University

OTHERS

Former Surgeon General
Wright Patterson Air Force
Dayton Foundation
City Wide-community dev co
Ohio Bureau of Worker’s Compensation
United Way of the Greater Dayton Area
Greater Dayton Co-op Initiative
Facing Addiction in America
American Society of Addiction Medicine



12 Crisis Stabilization Beds. (3.1)
27 Residential Inpatient Beds (3.2 – 3.7)

Critical Factors for Success of the Ecosystem

Our goal is to demonstrate the value of delivering high quality care for individuals with behavioral health disorders.

Financial Sustainability

Current fee-for-service payment models render the treatment of behavioral health a loss leader. In order to develop a more financially sustainable model, the parties will enter into a partnership framework that will optimize our ability to go at-risk and negotiate value-based payments

Information Sharing

In order to ensure successful clinical integration, health information about the treatment of the population will need to be shared. This information will be used to determine minimum quality standards and structure pay-for-performance incentives.

Management/Governance

We want to ensure the governance structure is optimized for efficiency and that accountability measures are in place to ensure alignment and achievement of Ecosystem objectives

Addiction recovery ecosystem: cohort assumptions

COHORT DESCRIPTION REGION UNMET NEEDS REQUIREMENTS

1

ED/EMS
Redirect

- EMS direct admit
- ED redirect from local ED's
- Refusals will receive f/u from Quick Response Team (QRT)

3,900 ED patients &
3,637 law enforcement calls
(Montgomery county)



About 1 in 10 people that receive Narcan die within 1 year

- Ability to directly admit
- Telehealth capabilities in ED's
- EHR/Care coordination interoperability
- City investment in QRT model

2

Self/
Community
Referral

- SBIRT identified, community partners
- Adults w/ opioid addiction, high-risk pregnancies, families with newborns with neonatal abstinence syndrome, and high-risk family environment

14,000 affected in the region
Shortage of providers and waivers
Existing BH providers at capacity



Dayton/Montgomery county stats

- SBIRT protocol
- Access to EHR data
- Hub n Spoke model for chronic care management in non-specialty setting

3

Drug
Court

- Court mandated recovery program
- Law enforcement diversion program

7,900 people with drug
charges in 2015

- Mandated treatment protocol
- Access to drug court data
- Diversion agreement with law enforcement

Addiction recovery ecosystem: clinical services

Withdrawal Management

Sub-Acute WM/Detox, residential services

Outpatient Stabilization-3.2 (Kindred First Floor)

- 7 rooms with recliners for WM
- Initiation of MAT, < 24 hrs
- Clinically managed care

Higher Acuity Withdrawal-3.7 (Kindred Third Floor)

- 16 bed Sub-Acute
- Medically complex Opioid & Alcohol, transition to lower level of care once medically stable
- ALOS 2-7 days

Rehab-3.5 (Kindred Third Floor)

- 16 bed IP Rehabilitation
- Medically stable, but requires clinical mgmt
- 25%(?) subset of all patients
- ALOS 2 weeks

Sober Living-3.1 (New apartments)

- Recovery requires stable and structured environment
- Access to OP or IOP services
- ALOS 6-12 months



Comprehensive Outpatient BH Center (New clinic)

Comprehensive Addiction Recovery, Mental Health and Social Services for patient and families-levels 1, 2.1

Medication Assisted Treatment (all 3 FDA approved medications)

Home-Based Care Services

Outpatient and Intensive Behavioral Health Services

Integration with Primary Care

Peer to Peer

Group and Family Counseling

Contingency Management Program

Case Management, Social Services, & Vocational Training

Multidisciplinary Care Team

- Medical Director (Addiction Specialist) supervising care
- Psychiatrist or Family Physician - Waivers to RX
- Nurse Practitioners
- Case Managers / Care Coordinators / Social Workers
- Certified Chemical Dependency Counselors
- Group / Family Therapists
- Peer Counselors (including graduates)

Measuring the success of the ecosystem

PROGRAM GOALS

Help people **recover from addiction and live healthier lives** while revitalizing the community. Scale the components of the model that **drive superior outcomes**.

CLINICAL OUTCOMES

- Relapse rates
- Overdose events
- Role functioning
- Social functioning
- Secure and stable housing
- Financial security
- Quality of Life
- Physical health

COMMUNITY OUTCOMES

- Public health utilization
- Crime rates
- Incarceration rates
- Emergency services
- Property values
- Employment rates



Addiction recovery ecosystem dimensions

The Verily care model composed of three distinct components, seamlessly integrated amongst one another, as well as the support social and economic development initiatives.

TECHNOLOGY

The platform that will integrate data across myriad sources, driving integrated, high-quality care delivery and proactive performance management

Examples

Baseline Platform

Devices & sensor integration

Health Information Exchange

Longitudinal Addiction Management Tools

Predictive Algorithms and Analytic Tools

MANAGEMENT

The management functions that will oversee the operation of the ecosystem and coordinate the activities of patients, caregivers and available support resources.

Examples

Leadership, Program Management & Coordination

Research Coordination & Protocol Adherence/Management

Grant Writing & Policy Support

Billing & Collection Services

CLINICAL

The care delivery functions required to effectively, compassionately and sustainably treat and manage people struggling with addiction.

Examples

Licensed healthcare facilities

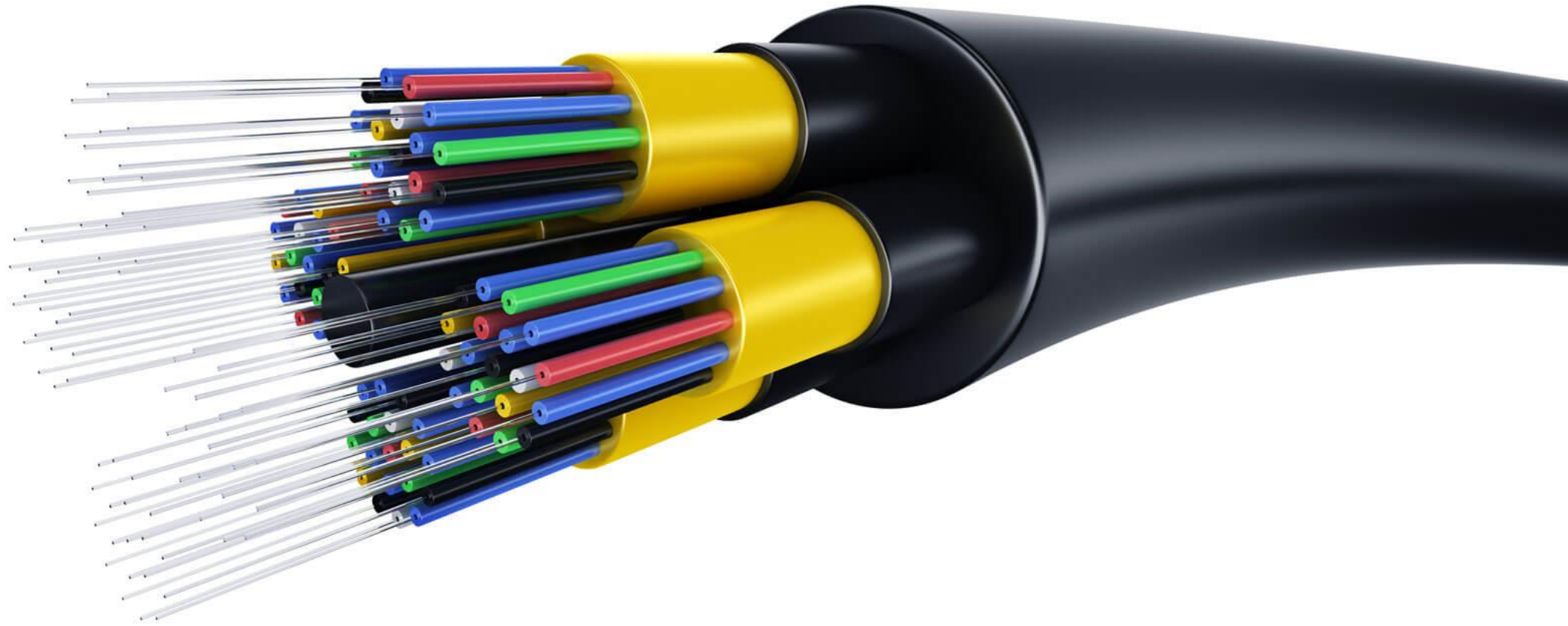
Licensed addiction care providers

Clinical support staff

Social services & Counseling

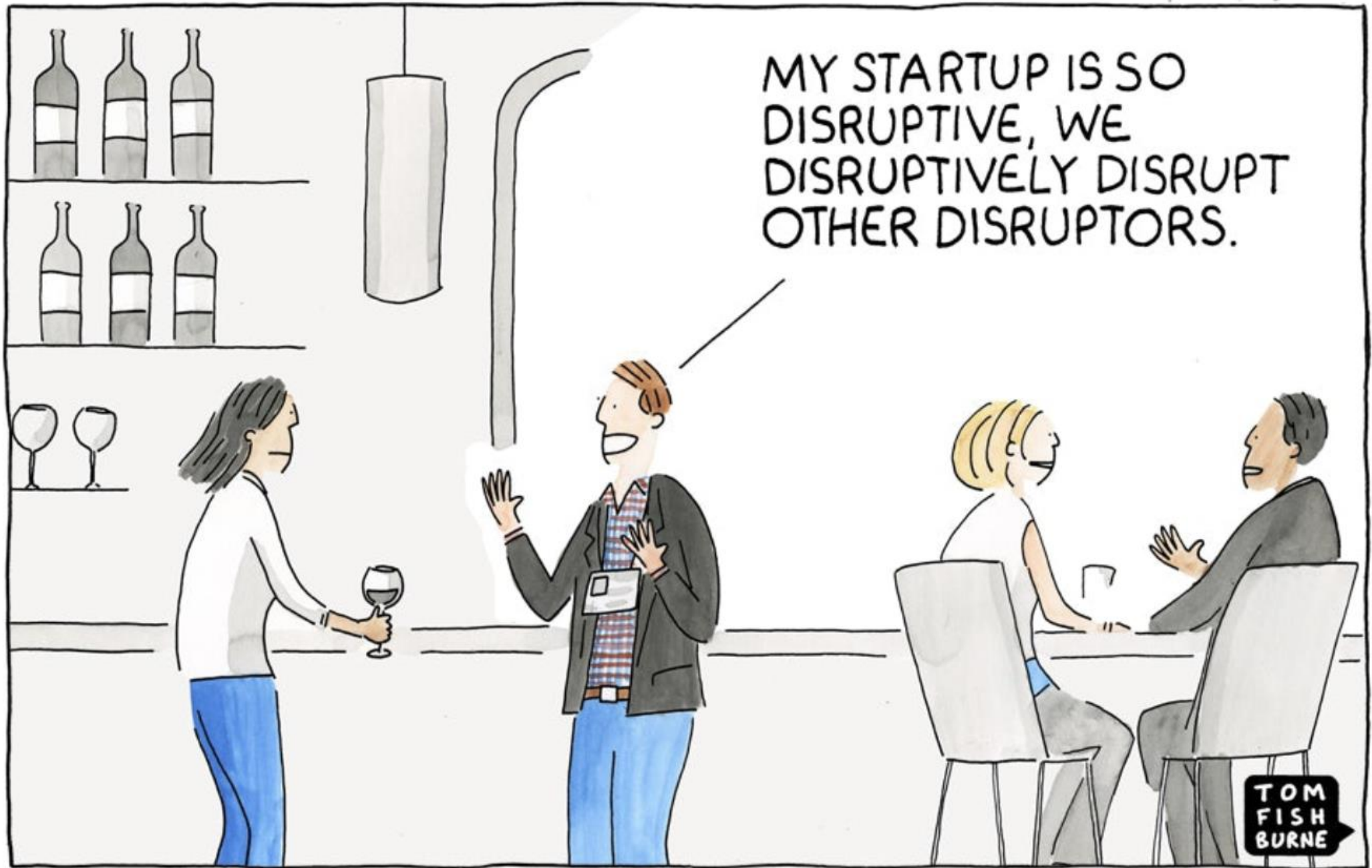
Vocational Training & Supported Employment

**Save some organizational bandwidth
for innovation**



Create an environment/culture to partner with non-traditional healthcare organizations





MY STARTUP IS SO
DISRUPTIVE, WE
DISRUPTIVELY DISRUPT
OTHER DISRUPTORS.

TOM
FISH
BURNE

A photograph of Peter Drucker, an elderly man with glasses, wearing a blue suit and a white shirt with a tie. He is sitting with his hands clasped in front of him, looking slightly to the right of the camera with a thoughtful expression. The background is a plain, light-colored wall.

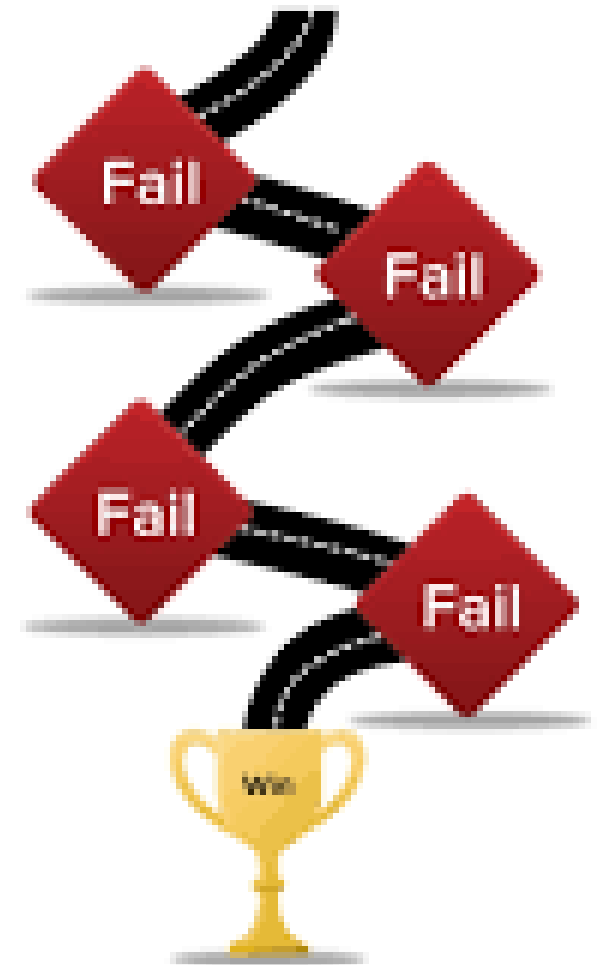
**‘Culture eats
strategy for
breakfast’
- Peter Drucker**

**Take risks.
Fail fast.
Iterate constantly.**

What Most
People Think



What Successful
People Know



You can change
STRATEGY
without changing your
VISION





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