

HERO WEBINAR

December 7, 2017

Tailored Outreach & Employee Engagement: How Big Data Analytics Can Transform Health & Business Outcomes



With Guests
Dr. Michael Parkinson,
Dr. Marleece Barber & Dr. Wendy Lynch

Hosted by Karen Moseley



Translating Big Data to Personalized Outreach

Innovation in Proactive Mental Health Management

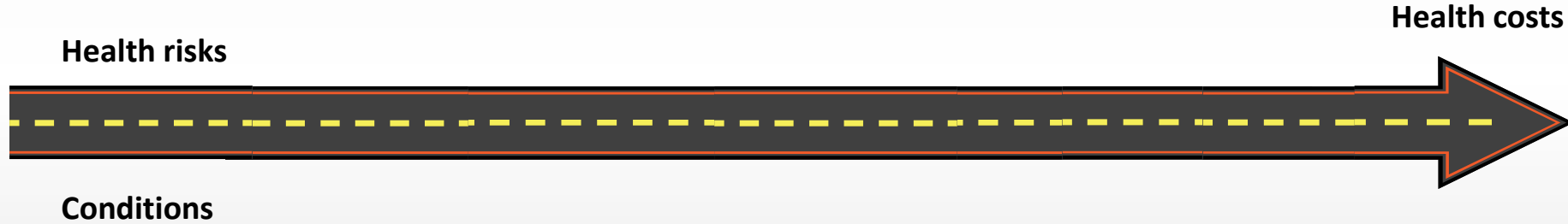


UPMC
WorkPartners

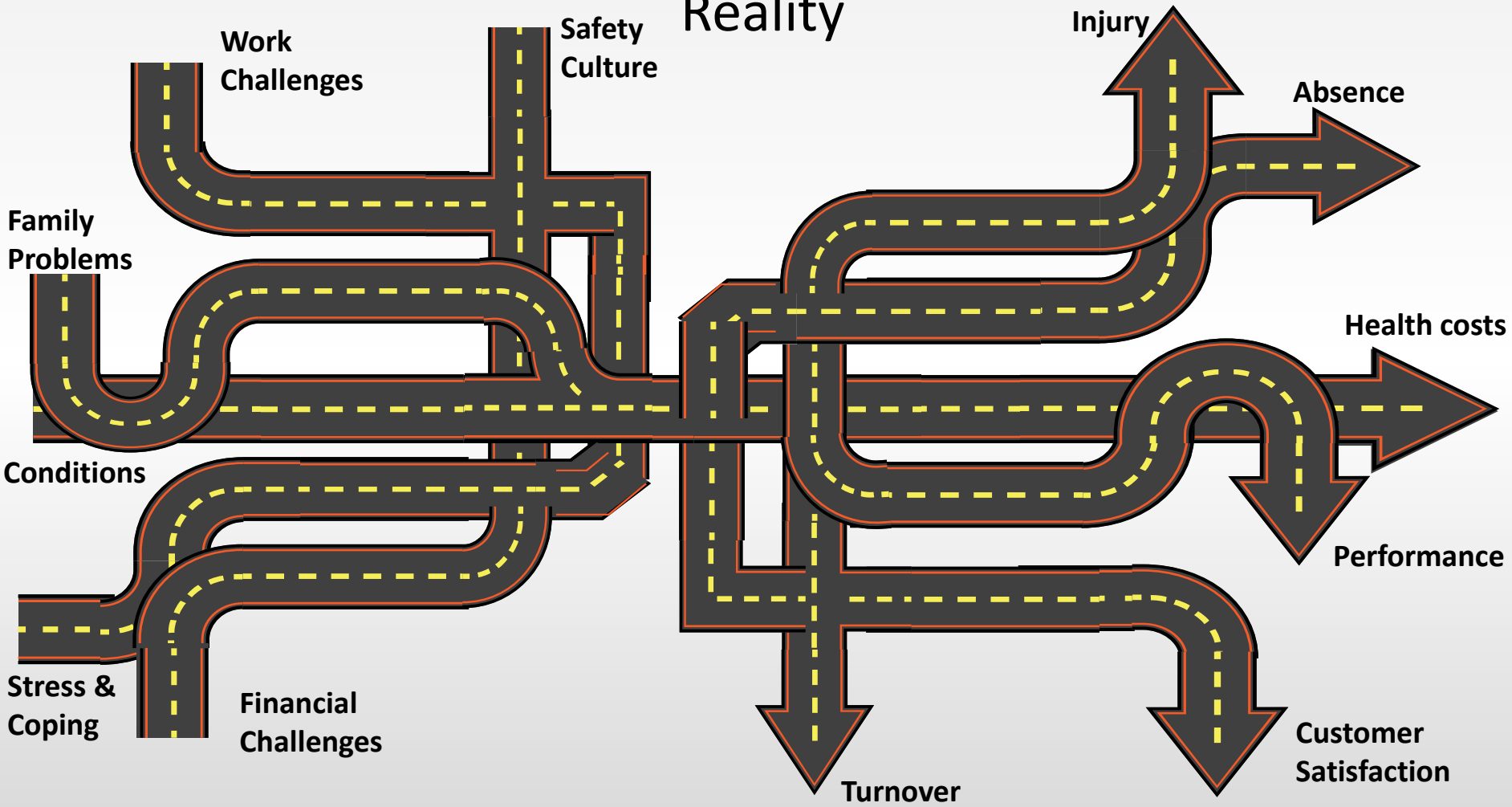
Health, life and work are not separate issues



Outcomes, oversimplified



Reality



Today's Presentation

1. Big Data: finding new populations with super-accuracy
2. Integrated outreach: maximizing engagement
3. Business Value for UPMC



Big Data means bigger perspective



Continuous Learning

- Investigate past patterns
- Apply toward future predictions
- Revised iteratively



Big Data means big picture

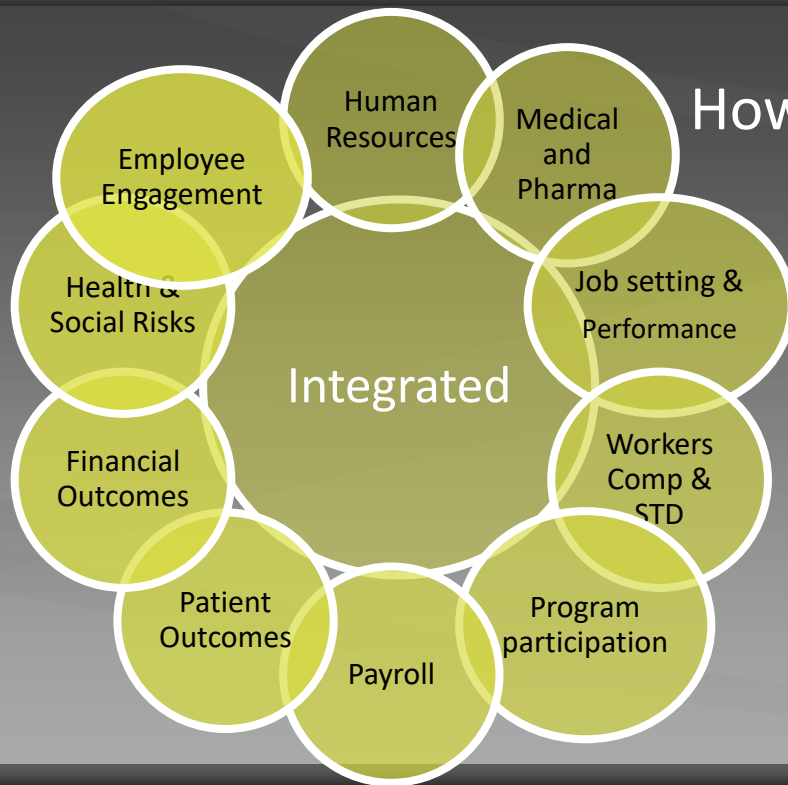
All data sources

- Integrated at the individual level
- Automatically refreshed
- Current within 30 days
- Linked at the business-unit level
- Dedicated analysts
- Feedback loops for validation



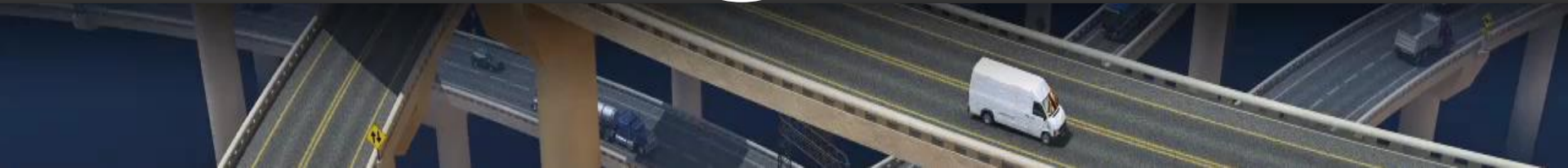
Big Data transforms predictive capabilities

How do social determinants



How do job characteristics influence medical utilization?

Influence absence and injury?



Big Data is Now Possible

Because

- Computing power
- Storage space
- Statistical Methods
- Open source

Allows

- 800-1000 variables
- 45K people
- Automatically Updated (monthly)
- Short lags 1-10 days (Dx/Rx-30)
- Machine learning to optimize prediction



As recently as five years ago



Statistical analysis methods and hardware couldn't/didn't:

- Process large numbers of variables
- Process variables that are related to each other
- Perform iterative analysis in a timely fashion
- Optimize and compare potential models
- Display results in a useful way
- Evolve continuously



Recognizing the burden of mental health

- 94% of organizations say stress is an issue for employees
- CDC estimates costs of mental health (\$317B) greater than cost of all workplace injuries
- 200 million work days lost per year... (one million FTEs)

Mental Health and Substance Abuse: 2016 Survey, IFEBP



Why focus on mental health?



**Mental Health
Services**

**Physical Health
Services only**



Percent of integrated cost by service	4.7%	95.3%
Percent of People	34%	66%
% of Integrated Total Costs	73%	26%
Additional Days Absent	6 days (700 FTEs)	



Example: Predicting future events

Question: Can we predict who will have high stress, resulting in a new mental health claim?



Approach: Looking at people with no mental health claims for two years, which ones will have one in year three.
(mood, anxiety, adjustment)



Using traditional data sources

Add Longitudinal
Change in HRA



Identifies 138
79% accurate

Add recent HRA



Identifies 45
67% accurate

Group Health Data



Identifies 12
58% accurate



Adding integrated data sources

80% accurate: 325 confirmed cases

FMLA Short-term Disability Workers Compensation Add Human Resources



Identifies 410



Predictors are

We can predict new stress/mental health cases each year before they happen, with **high** accuracy.

Mostly anxiety, mood and adjustment issues. (treatable)

Predictors include:

- Changes in HRA responses
- Performance reviews
- Work settings
- Work scheduled
- New work injury
- Leave type and frequency
- Financial hardship
- Type of absence
- Recent job stress
- Repeat LOA
- Low work engagement



Example 2: Disability Duration

Integrated risk



Musculoskeletal STD Duration

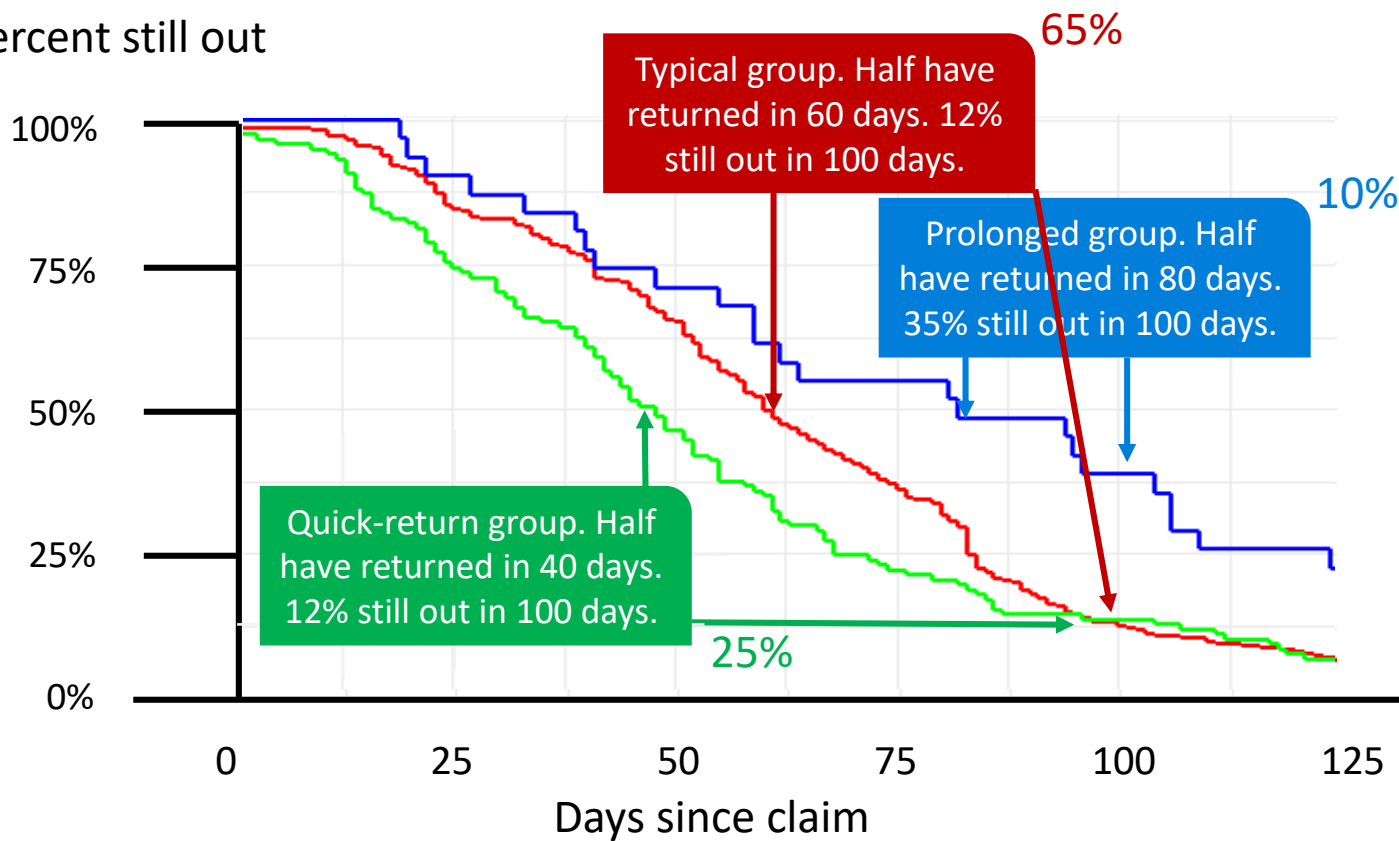
Disability duration is multifaceted

- Identified 26 common MSK disability Dx: median duration ~55 days
- Non-medical predictors of duration
 - Age (older)
 - Work schedule
 - Previous absence rate
 - Department-level engagement (lower)
- Grouped on these predictors using cluster analysis



What Influences Duration of STD?

Percent still out





Applying Integrated Services To Big Data

Connecting people and services in real-time

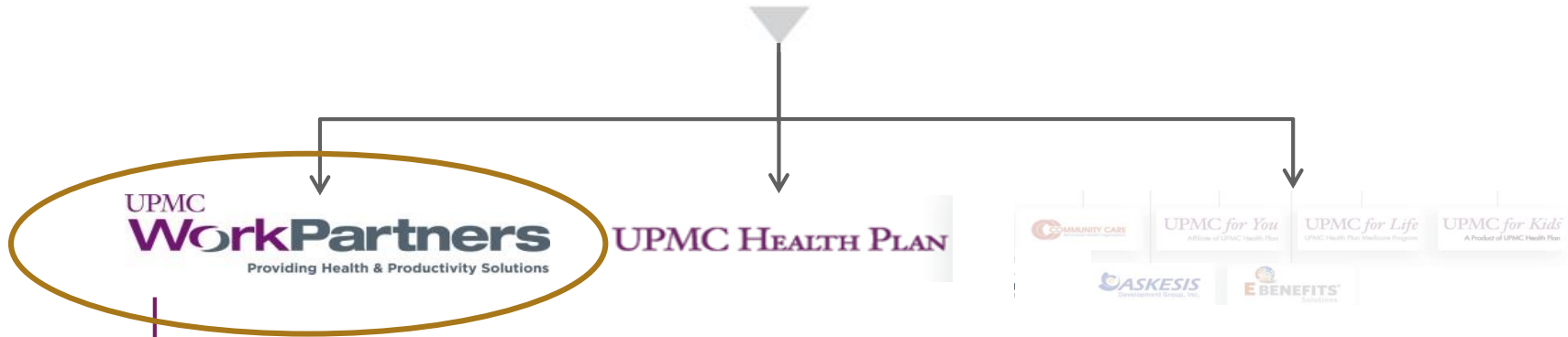
What good is identifying new people
If we can't reach them?



Who Is WorkPartners?



UPMC Insurance Services Division



LifeSolutions EAP & Health Management Solutions	Absence Management Leave & STD Services	Workers' Compensation TPA & Fully Insured	On-site Services Employee Health & Acute Care Clinics
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Redefining Workflows!

- *Connecting employees to the support services they need*
- *They are ready to engage*
- *It is an iterative process*



Take advantage of scheduled “stops”



Existing wellness programs



Integrated Clinic Visits



WC/STD/Leave

Multiple Opportunities for Repeat Engagement

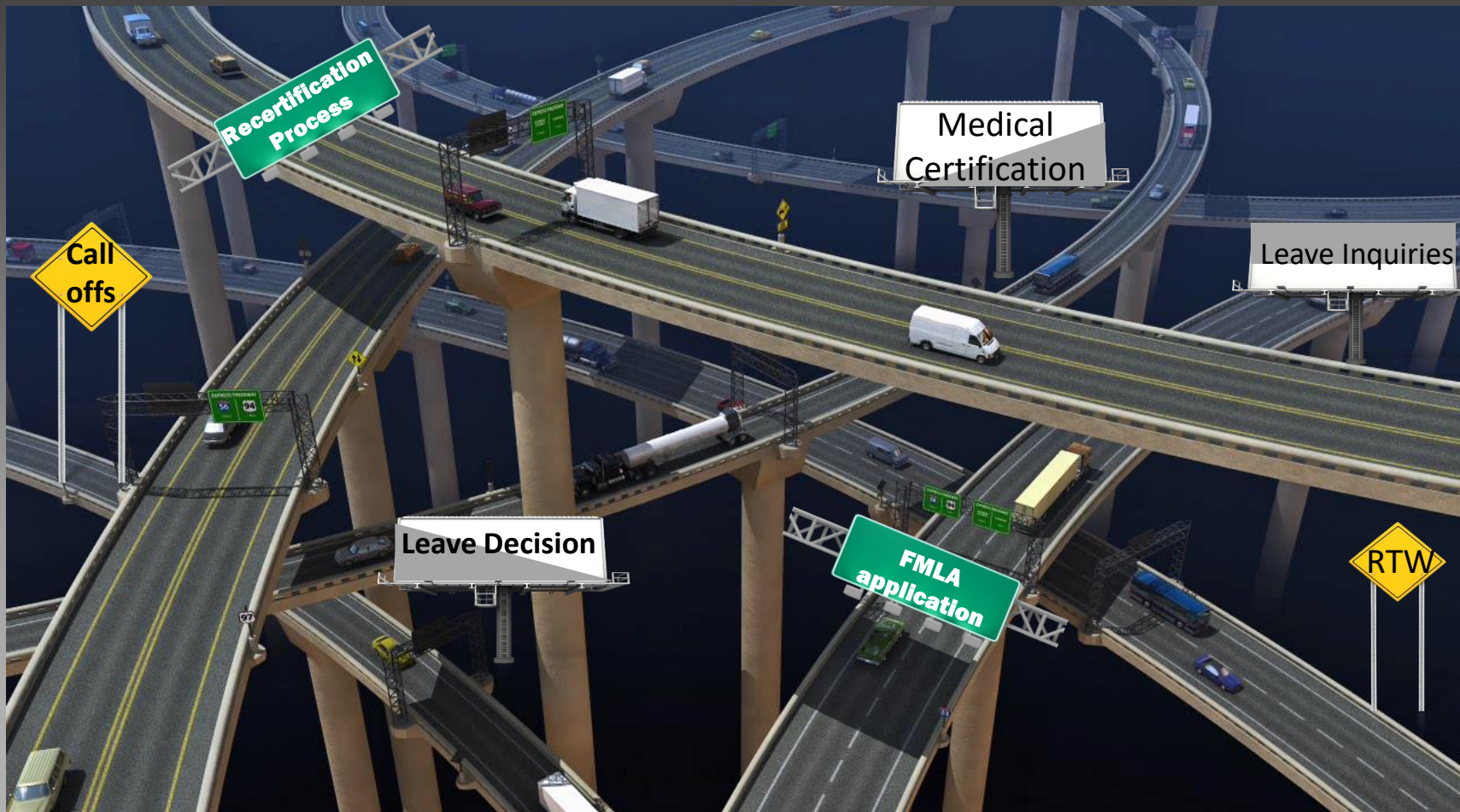
Over 40,000

Over 150,000

Over 60,000

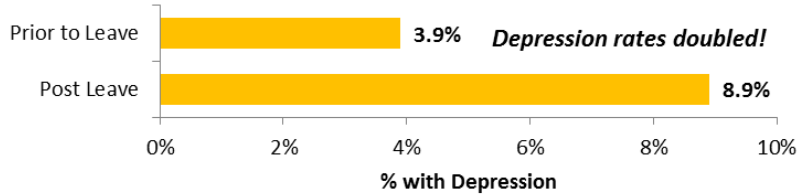


Multiple engagement opportunities - Leave



Real-time Hand-offs Work

Integrated Data Identifies High Value Target Population:
FMLA Care of a Loved One



Family Illness



Warm
Transfer



FMLA

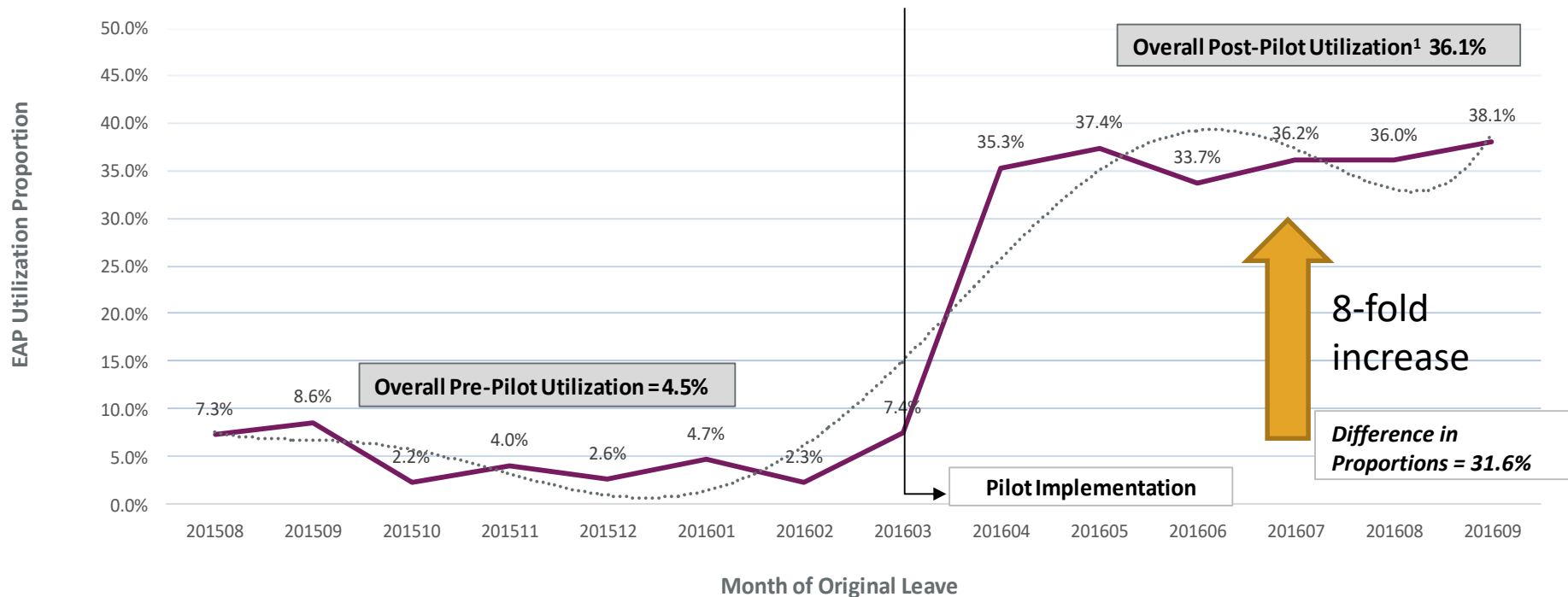
EAP Services

EAP Services



Example #1: FMLA to EAP Active Hand-off Pilot

EAP Utilization for FMLA Reasons - Parent, Partner/Spouse or Child



Example #2: Prescription (Rx) for Wellness

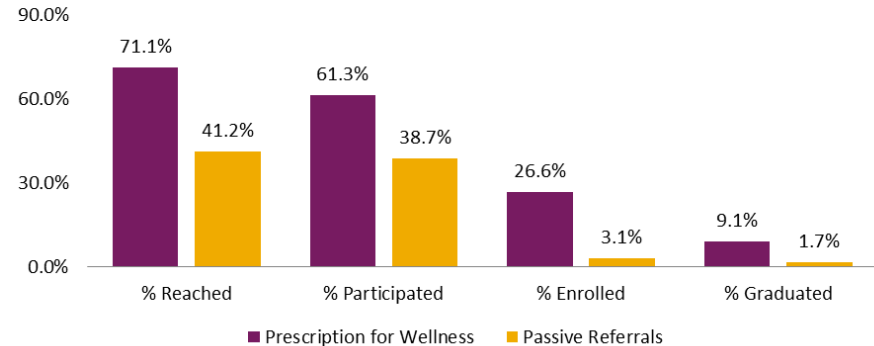
Why Prescribe Healthy Behaviors? The Power of the White Coat



- The clinician/patient conversation is very potent in promoting positive behavior change outcomes.
- A Rx denotes an expectation for follow-up and “filling” the order.
- Promotes patient action to initiate.

Engagement **2x-10x** greater than “usual care” identification and referral routes

Engagement Rate Comparisons



Sounds Simple.... It's not

Key Components

Process flows

Live flags in records

Timely identification

Counselor training

Ongoing evaluation



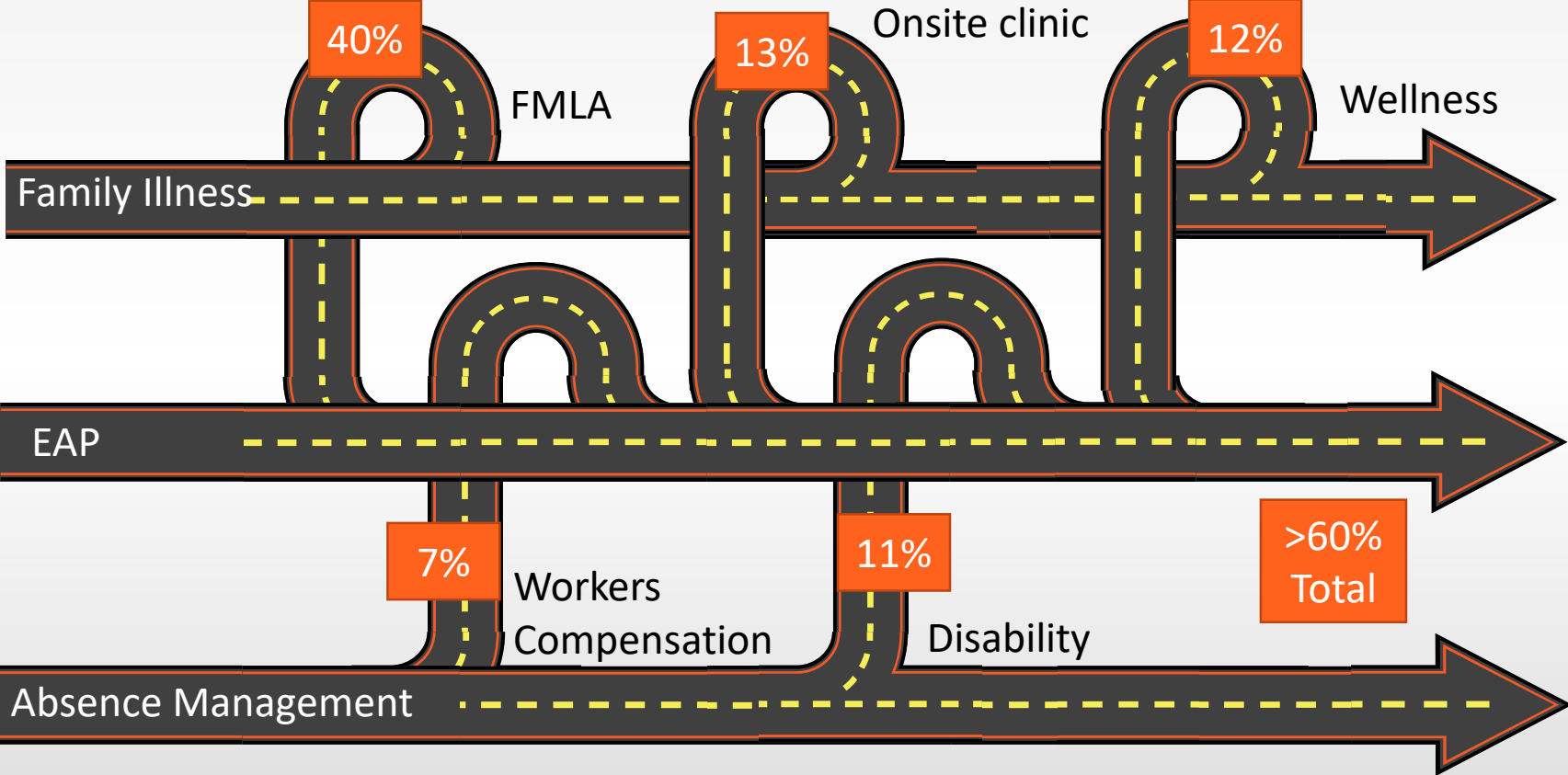
High Stress- Mental Health

Of the 325 people identified

- Contact in the **12 months** prior or after: **75%**
- Contact in the **6 months** prior or after: **65%**
- Contact in the **3 month** prior or after: **52%**



Over the next 12 months



Summary

Real-time, integrated referrals:

- Just as important as accurate prediction
- Leverages existing integrated service delivery
- Significantly increases in engagement



Big Data Business Value to

UPMC LIFE
CHANGING
MEDICINE

About UPMC

UPMC HEALTH
SERVICES DIVISION

UPMC
ENTERPRISES

UPMC INSURANCE
SERVICES DIVISION

UPMC INTERNATIONAL

*Highly integrated
system with an
academic medical
center hub that is
closely affiliated with
the University of
Pittsburgh*

UPMC Health Services Division has:

- More than 20 academic, community, and regional hospitals with more than 5,000 licensed beds
- More than 500 clinical locations in western Pennsylvania
- More than 70 inpatient, outpatient & long-term care facilities for rehabilitation services
- More than 3.9 million outpatients visits

UPMC Insurance Services Division has:

- More than 2.9 million members in FY16
- \$7 billion in top line revenue
- 33% market share across all covered lives in western Pennsylvania
- The largest behavioral health insurance provider in Pennsylvania



Healthy Workforce Definition*

HEALTHY

Demonstrating **optimal health status** as defined by positive health behaviors; minimal modifiable risk factors; and minimal illnesses, diseases, and injuries

PRODUCTIVE

Functioning to produce the **maximum contribution** to achievement of personal goals and the organizational mission

READY

Possessing an **ability to respond to changing demands** given the increasing pace and unpredictable nature of work

RESILIENT

Adjusting to setbacks, increased demands, or unusual challenges by **bouncing back to optimal “well-being” and performance** without incurring severe functional decrement

**IOM: Integrating Employee Health: A Report for NASA 2007*



Our Challenge: Growing Healthier and More Productive Employees and Businesses



Health Measure	Pittsburgh Ranking vs. 14 Similar U.S. Economic Regions	
Diabetes	19%	13th
Fatal Heart Attacks	25.3%	12th
Obesity	36.6%	10th



Hospital Employees: Sicker and Higher Cost

A study of healthcare employees found:



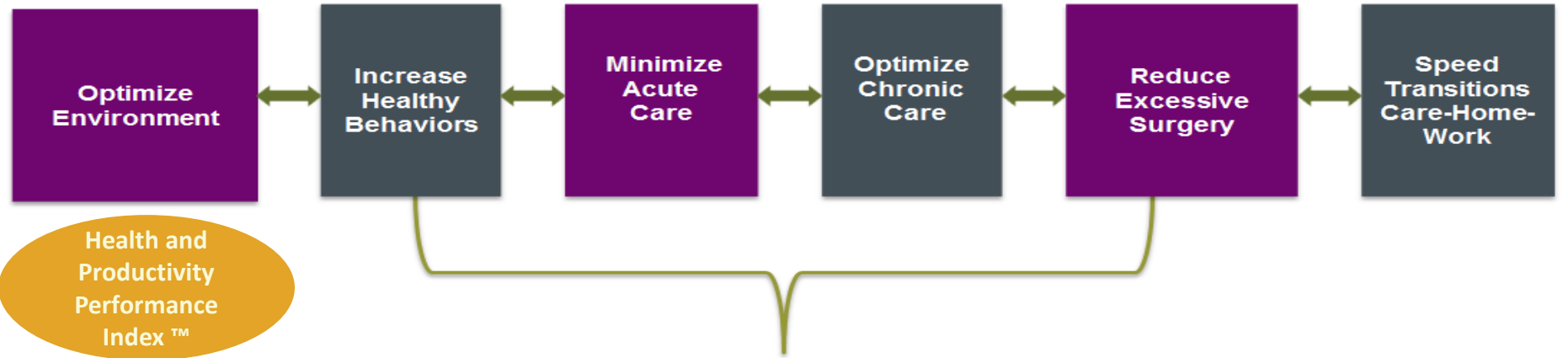
- Hospital employees have 10% higher healthcare costs
- Hospital employees & families have 13% higher healthcare costs
- Hospital employees & families have 8.6% more illness
- Hospital workers & families had fewer physician office visits, yet were 22% more likely to visit the ER
- The average annual cost of healthcare for hospital employees was \$4,662 exceeding the general employee population by \$538

(Source: CHICAGO | Monday Sept 12, 2011 12:25am EDT (Reuters))



Employer Health & Productivity Road Map™*

“Understand, Improve, and Partner With Your Doctor”



Incentivized Health Management Program or Consumer-Directed Health Plan

*Parkinson MD. Employer Health and Productivity Roadmap™ Strategy, JOEM 55 (12) Supp Dec 2013.

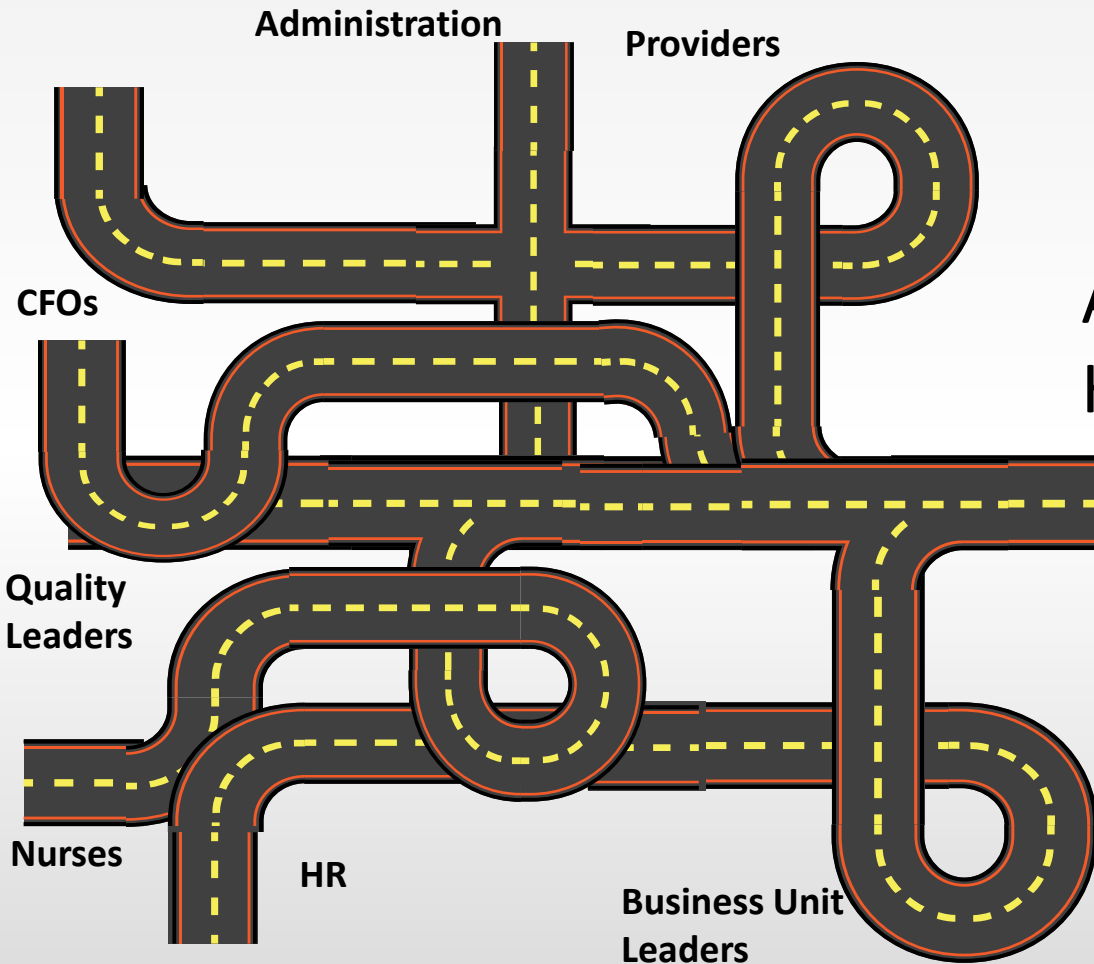


Collaboration

Big Data also means **Big Cooperation**

- Data owners come from all aspects of the business.
- And buy-in at the top is key.





All Roads Lead to Better
Health and Performance

Data integration provides a new
map for all the stakeholders to
merge and collaborate for more
effective and earlier
interventions for our most
valuable resources...

Employees and their families!

Poll Question 1:

In your organization, which of the following most closely describes the level of data integration you have available to you – to support identification and engagement in well-being?

- a. None
- b. The basics: health and pharmacy
- c. Health data plus some others (maybe workers compensation, absence, leave)
- d. A broad array of HR, human capital, health and other business metrics



Poll Question 2:

Employees vary in their “big E” Engagement (job satisfaction, loyalty, commitment to mission) and in their interest in health. What best represents your approach to assessing these domains?

- a. We track both health and “big E” engagement and integrate those data
- b. We track both but don’t integrate the data
- c. We track health, not Engagement
- d. We track “little e” engagement (participation in programs)
- e. We don’t track any of these



Poll Question 3:

Companies know how to engage employees.

- a. Strongly agree
- b. Agree
- c. Not sure
- d. Disagree
- e. Strongly Disagree

