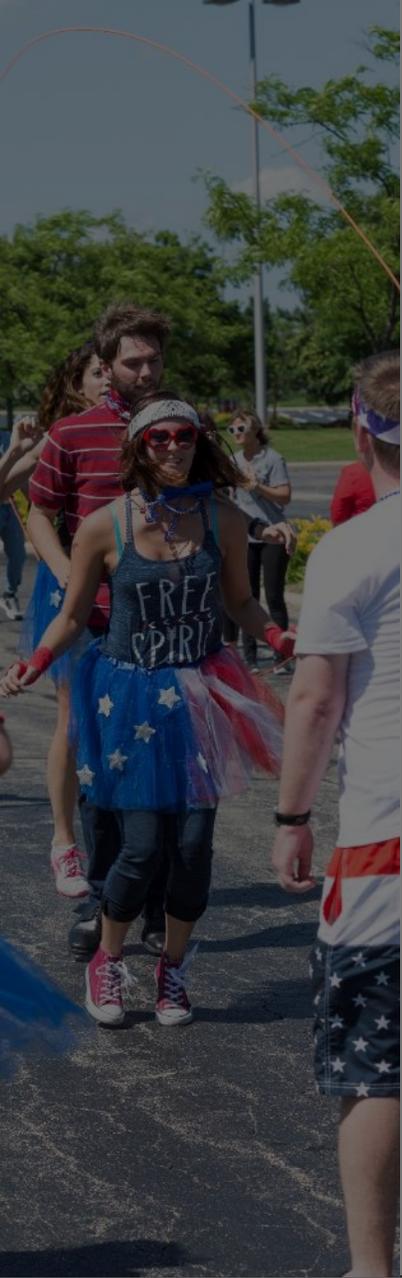


Safety and Wellness – The True ROI

Dr. Michael Rivas, DrOT
SVP Risk Management Services

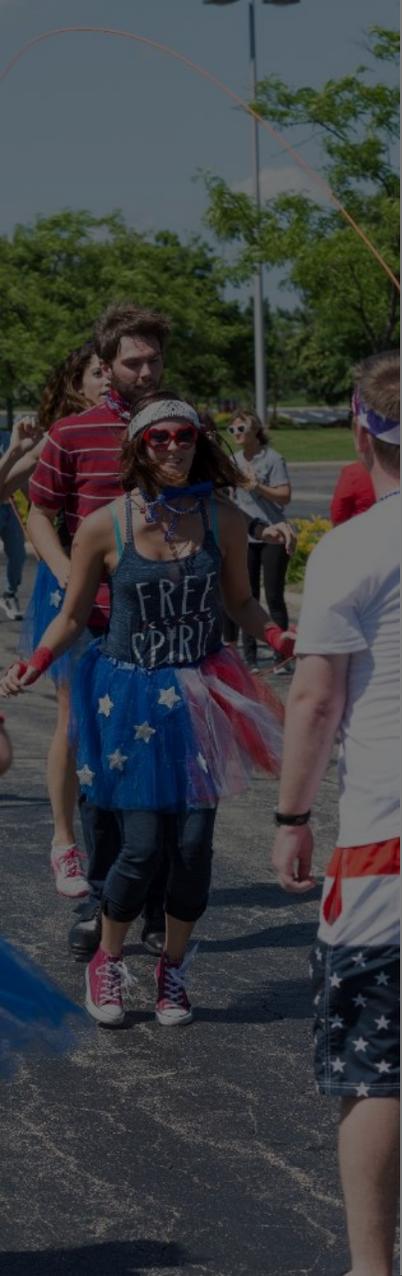


Objectives

- » Physical Aging Process
- » Unhealthy Workforce
- » Identify conditions associated with an unhealthy workforce
- » Establish analytics to determine a wellness/safety plan.
- » ROI and VOI of Wellness/Safety
- » Takeaways

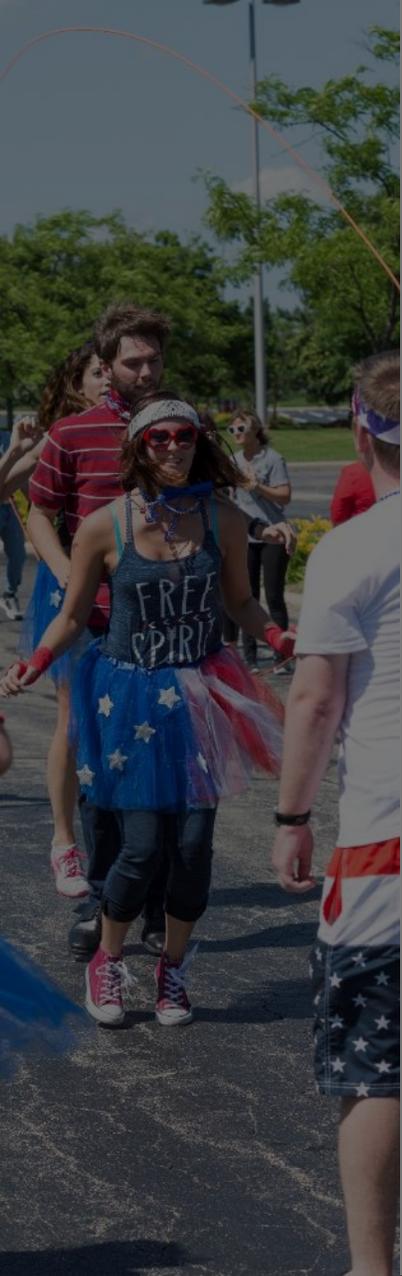
Aging Process

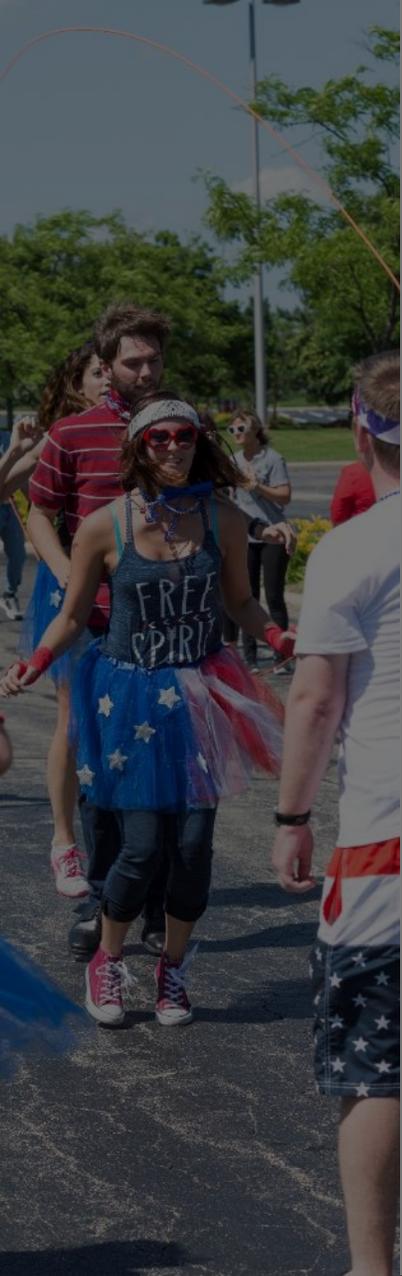
- » Generally, an individual's muscle mass peaks in their 20's.
- » Generally, an individual loses 1% of muscle mass per year after the age of 40.
- » Individuals lose about 30% of their muscle mass from 50-70 years and 30% per decade thereafter
 - (Agin and Perkins, 2015).



Aging Process

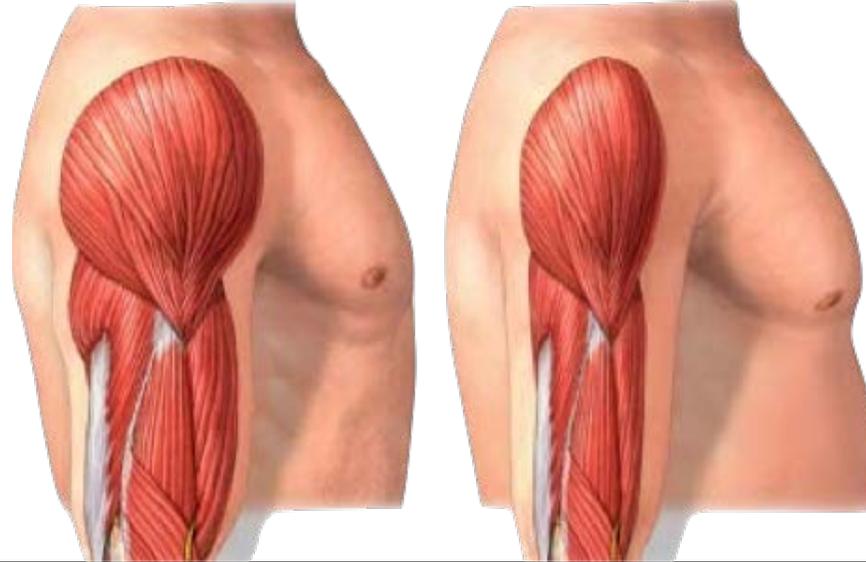
- » One may experience muscle loss due to
 - » Inactivity (related to a cast - atrophy)
 - » Aging process (sarcopenia)
 - » Neurological (stroke)
 - » Chemical (medications)
 - » Disease (cancer or cachexia)
 - (Goodpaster et al, 2006)

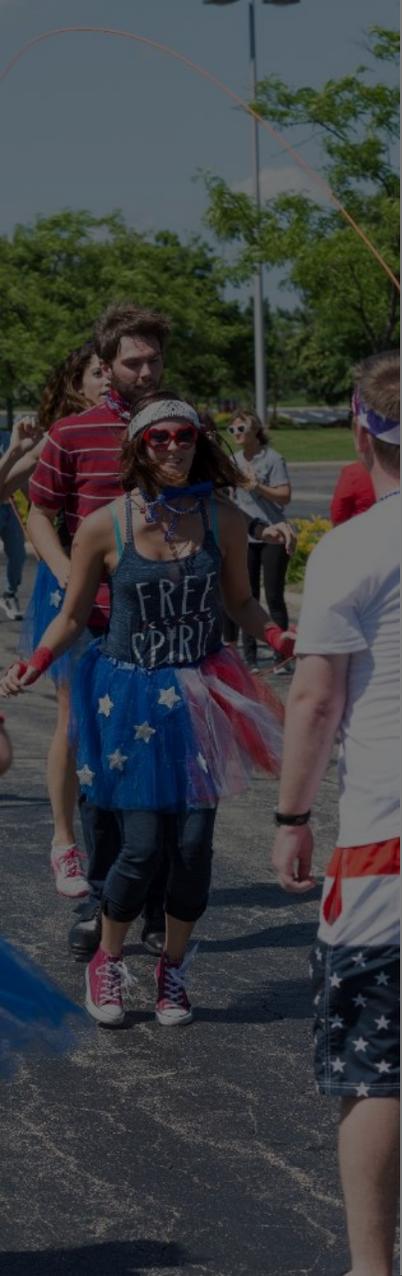




Aging Process - Sarcopenia

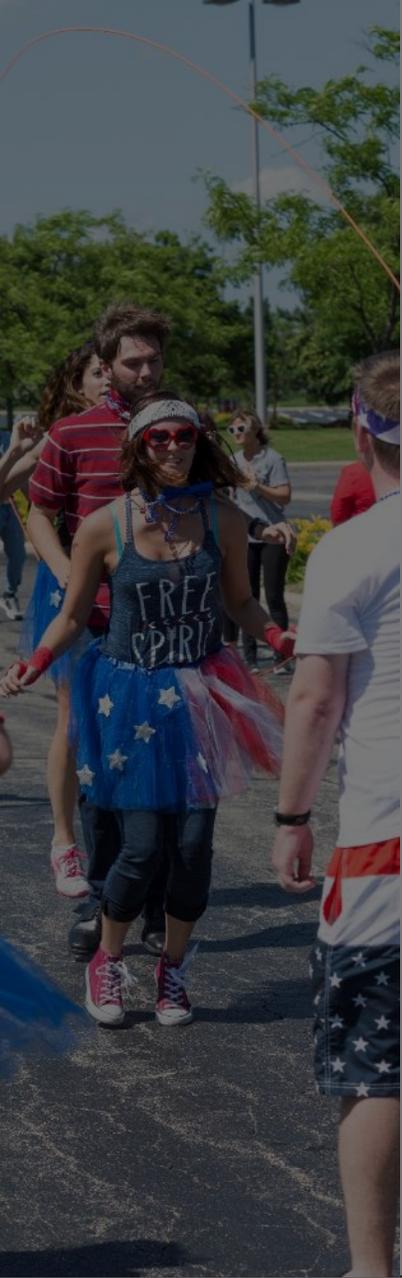
- » Sarcopenia is the loss of muscle mass related to the aging process.
- » Etiology – the loss of muscle mass is related to aging, decreased activity, and increase presence of disease.





Aging Process – Body Weight vs. Body Mass

- » As one ages their weight may stay the same, BUT without physical activity the loss of muscle strength will lead to a loss in muscle strength up to 25% (Newman et al, 2006).
- » If one's weight is neutral, then the muscle will be replaced with fatty tissue causing Sarcobesity.



Unhealthy Workforce

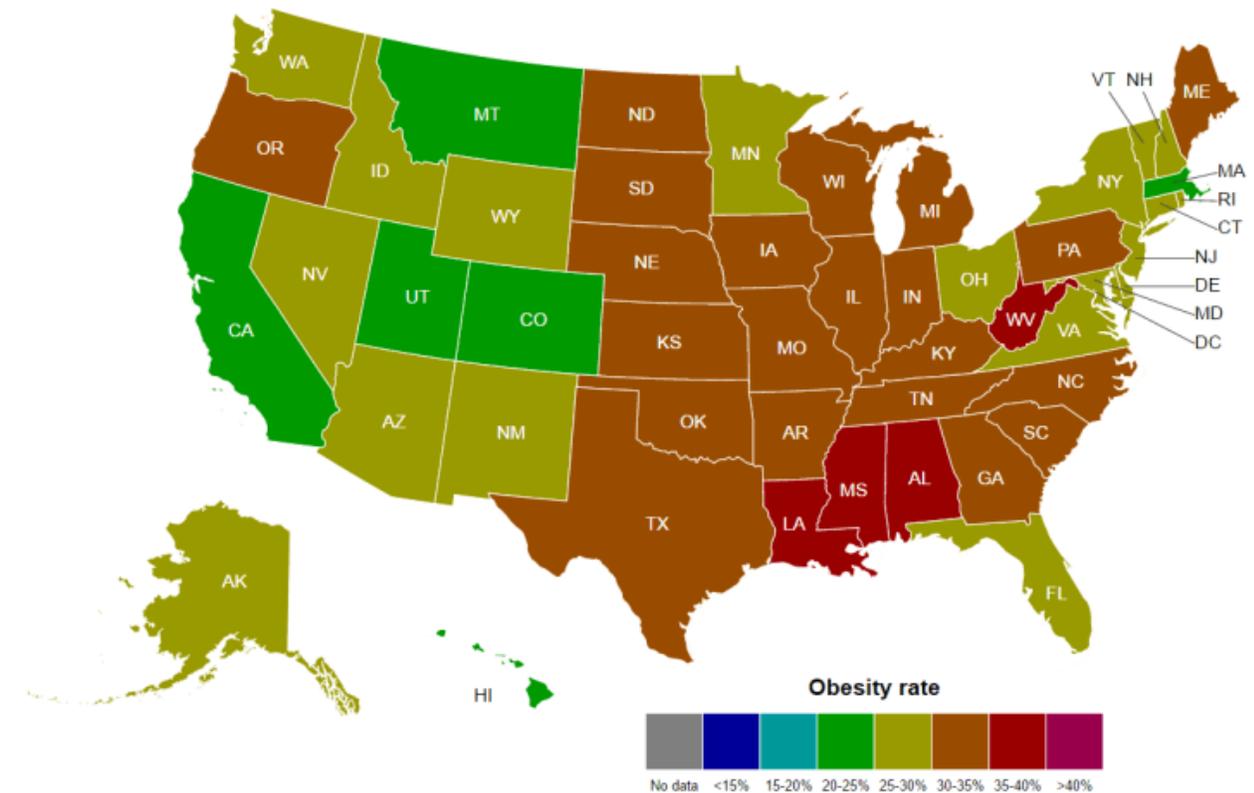
- » 68.5% of adults are overweight or obese
- » Nearly 40% of middle-aged adults (40-59 years) are obese
- » Almost 80% of individuals with diabetes II are overweight
Obese workers are **2x** more likely to file WC claims
- » WC Medical Only Claims – **7x higher**
- » WC Indemnity Claims – **11x higher**
- » Absenteeism - **13x more days off from work**
 - (Smith, 2014)



Unhealthy Workforce - Obesity

- » Transportation – 36.4%
- » Manufacturing/Production – 29.9%
- » Installation or Repair Worker – 28.3%
- » Clerical/Office – 26.6%
- » Manager, Executive, or Official – 25.6%
- » Service Worker – 25.6%
- » Nurse – 25.2%
- » Construction – 24%
- » Business Owner – 20.4%
- » Physician – 14.0%

Adulthood obesity rate by state

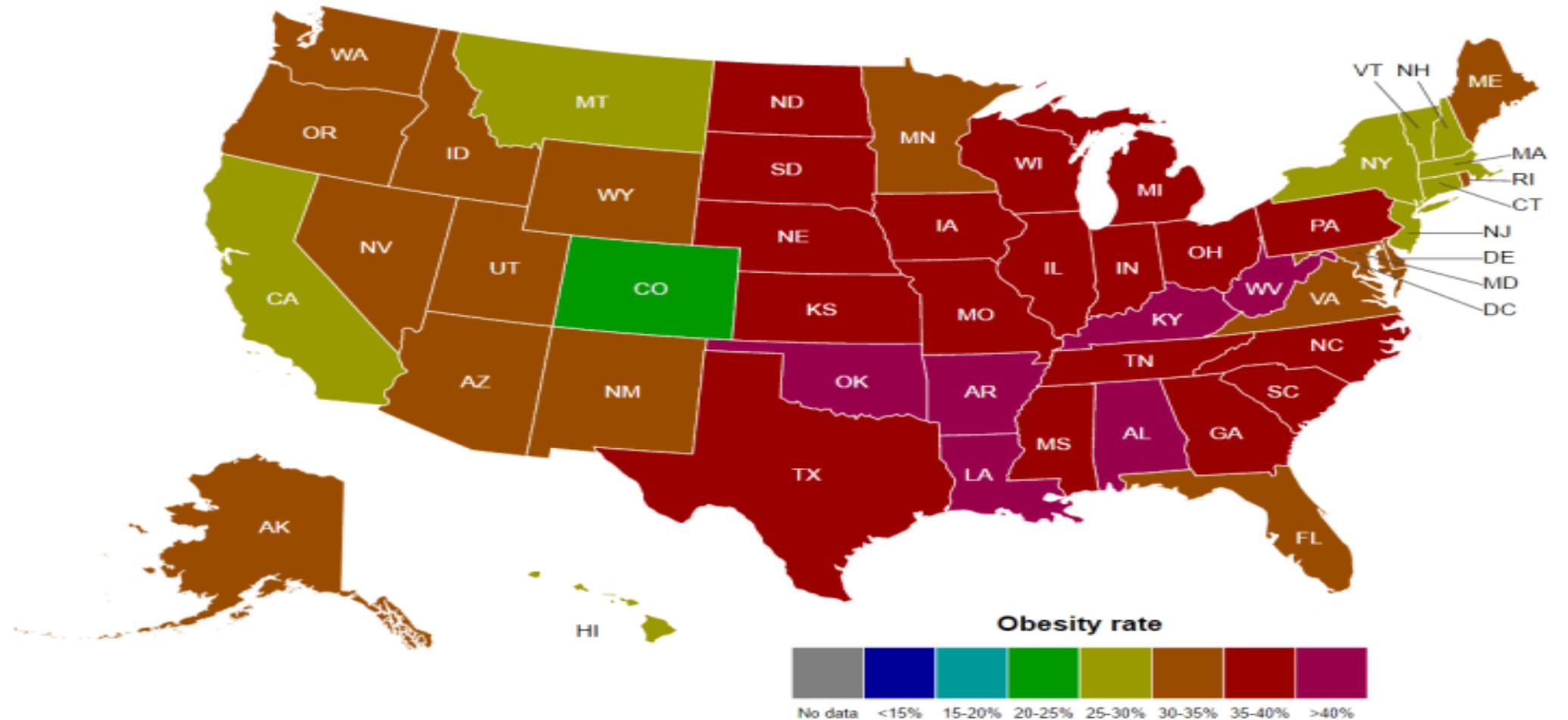


www.datavisualisations.net

Source: <http://stateofobesity.org/>

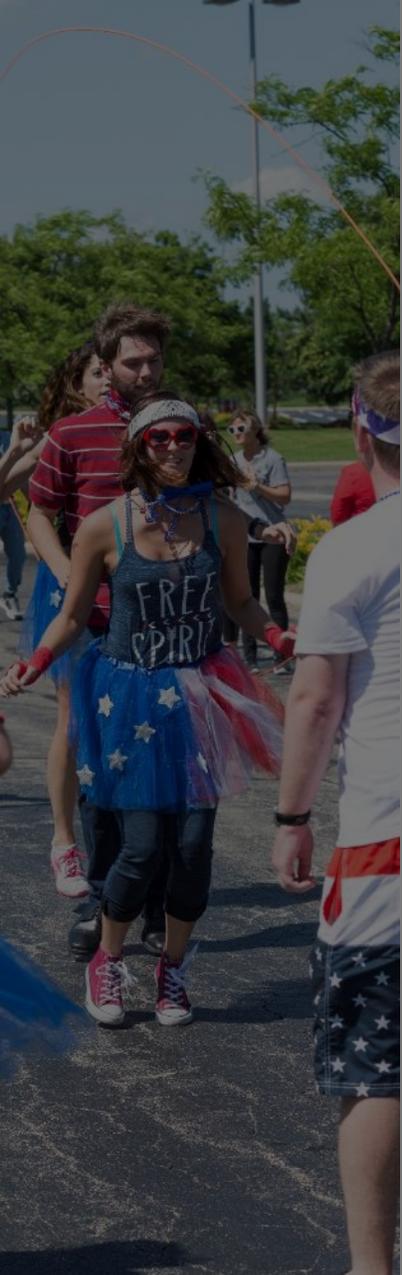


Unhealthy Workforce - Obesity (45-64 years old)



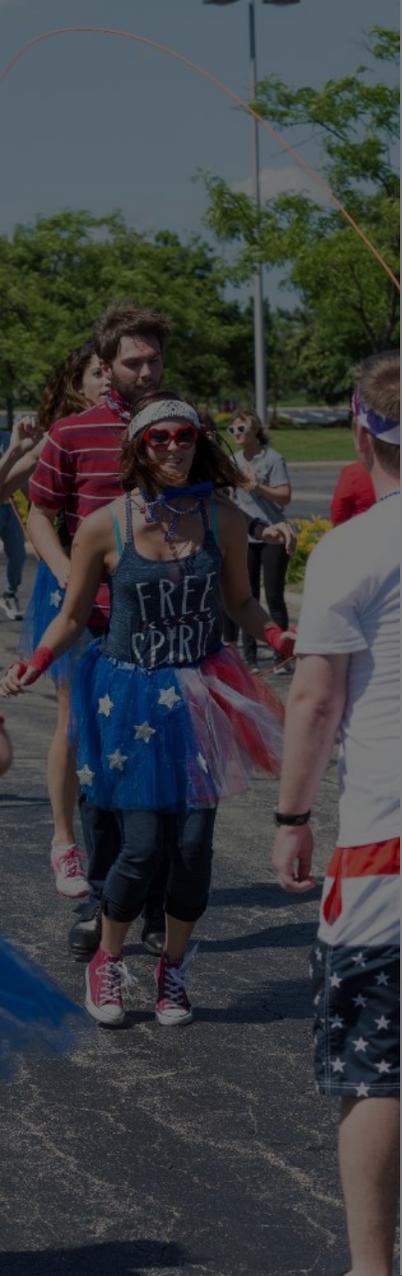
www.datavisualisations.net

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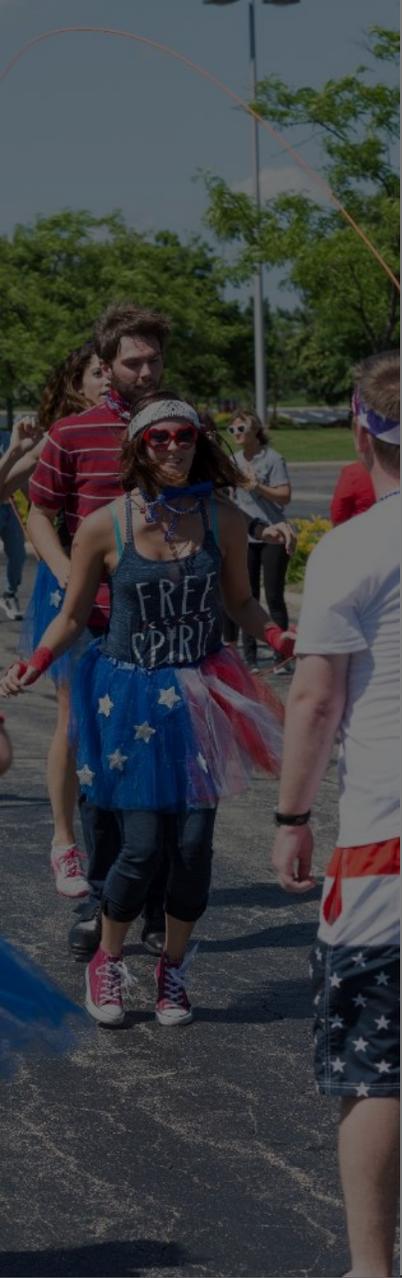
Unhealthy Workforce

- » 20 Million Americans suffer from Diabetes
- » 40 Million Americans are Pre-diabetic
- » There is **42.3%** incidence of complications post ankle fractures in diabetics
- » Nearly **50%** of individuals with diabetes performing manual labor report physical limitations.
 - (Glennon, 2010)
- » Cost for medications related to diabetes are approximately **2x** that spent on other medications



Unhealthy Workforce - Diabetes

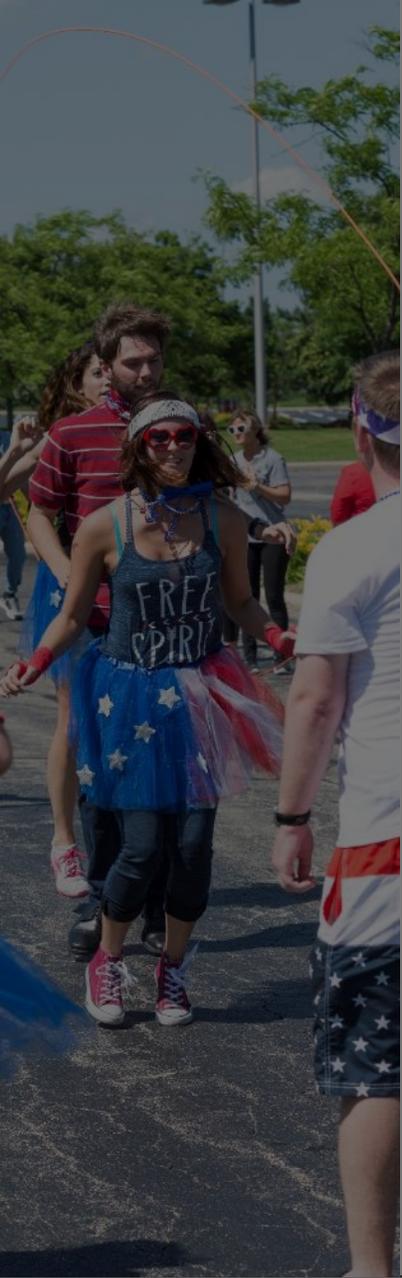
- » Poor level of fitness
- » General muscular deconditioning
- » Decreased flexibility
- » Higher risk for re-injury
- » WC claims are complicated with co-morbidities such as arthritis, lower back pain, joint problems, etc.
- » WC claims require slower healing time, extended therapy, and increased indemnity cost
 - (Despres, 2017)



Analytics

» Biometric Screens (aggregate data)

- » % of Smokers
- » % of Pre-diabetics,
- » % of Diabetics,
- » % of Pre-hypertension
- » % of Hypertension
- » % of Levels of risk
- » % of Participation rates

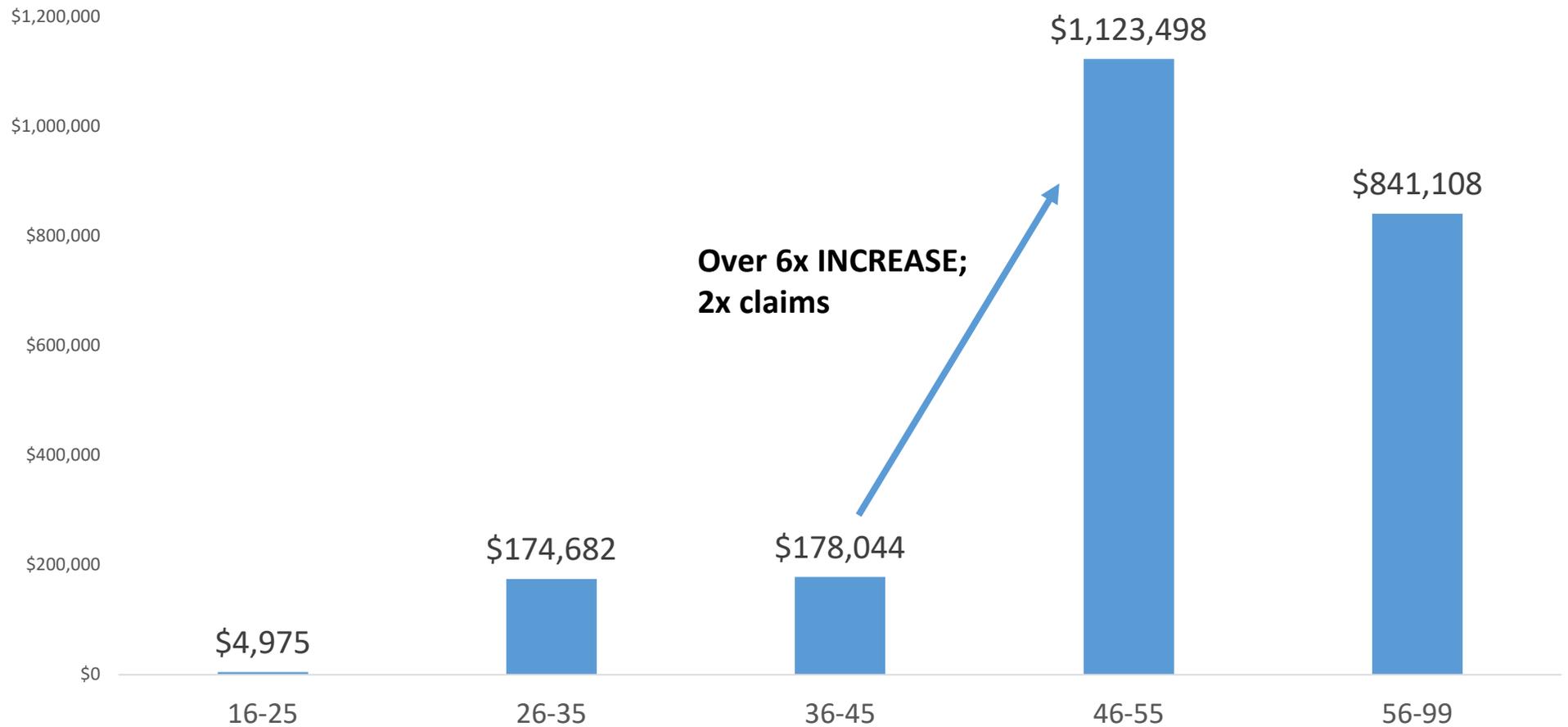


Analytics

- » Avg. Medication Cost
- » % of Compliance in Care
- » Total Claim Cost by Diagnosis (i.e. related to DM, Obesity)
- » Predictive Modeling (Predicted Future Cost)
- » WC Frequency Rates
- » WC Severity Rates
- » Length of employment at time of injury



Analytics - Total Cost of WC and EB Per Age Group (Manufacturing; N = 238)





Care Compliance Summary

Disease	ACG Guideline	Total Members	RUB	PRI-B	PRI-L	Members Not Compliant	NC-RUB	NC-PRI-B	NC-PRI-L	Members Meeting Guideline	% Compliance
Diabetes	Diabetic management medications, including insulins, meglitinides, miscellaneous antidiabetic agents, non-sulfonylureas, other anti-hyperglycemic agents, sulfonylureas, thiazolidinediones.	62	2.92 ●	2.77 ●	3.30 ●	22	2.95 ●	2.76 ●	3.24 ●	40	64.52%

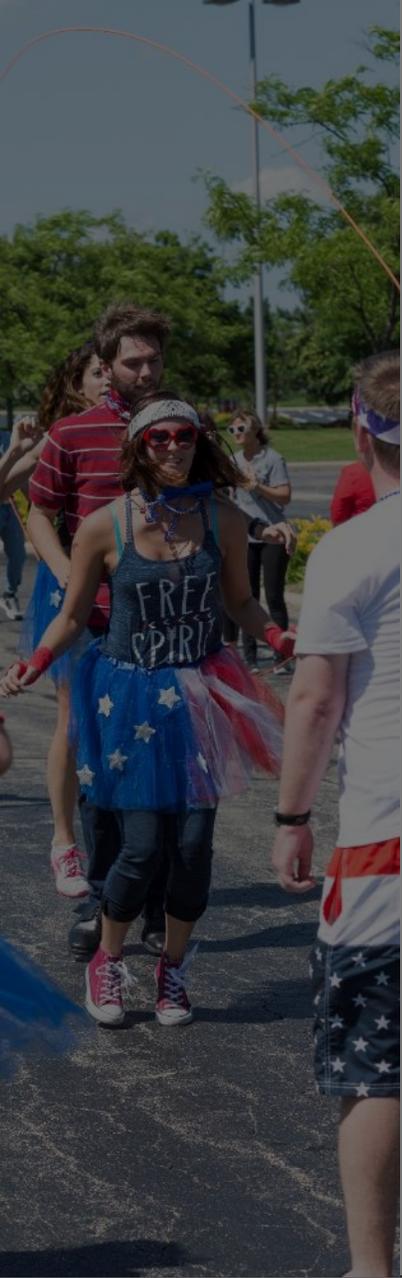
Preventable Conditions

Diagnosis Category	Number of Services	Number of Patients	Number of Admits	Average Length of Stay	Total Charges	Plan Payment	Average Paid per Patient
Diabetes							
Diabetes	738	63	4	2.50	\$85,973.98	\$37,816.66	\$600.26
Diabetes in Pregnancy	20	3	0	0.00	\$6,968.00	\$2,901.15	\$967.05
Total	758	66	4	2.50	\$92,941.98	\$40,717.81	\$616.94
Weight Related Conditions							
Obesity	62	6	0	0.00	\$2,675.50	\$4.50	\$0.75
GERD & Reflux	134	45	0	0.00	\$28,572.54	\$13,992.66	\$310.95
Osteoarthritis	58	6	0	0.00	\$14,911.58	\$11,650.70	\$1,941.78
Total	254	57	0	0.00	\$46,159.62	\$25,647.86	\$449.96



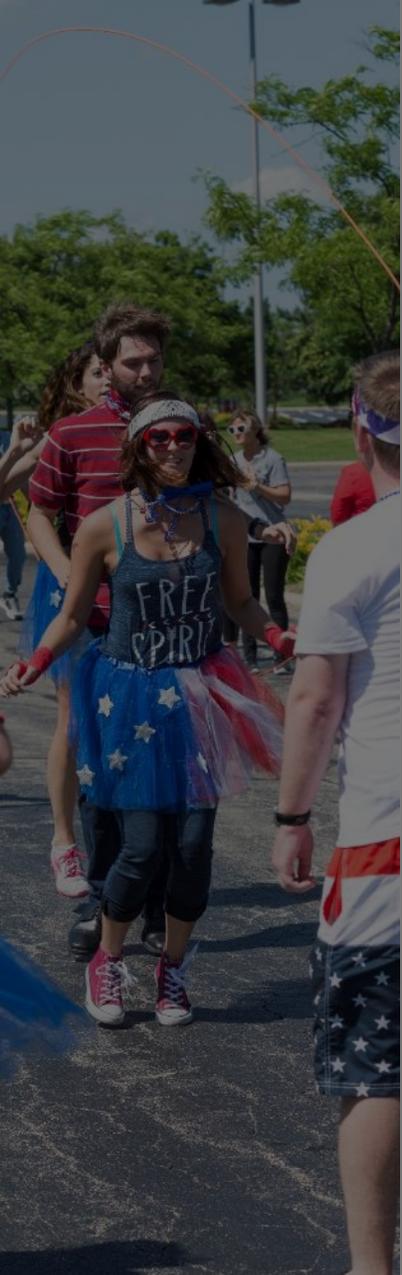
ROI

- » Save \$3.27 medical cost per \$1 spent on wellness
- » Save \$2.73 on absenteeism per \$1 spent on wellness
 - (Baicker, et al, 2010)
- » Save \$3.80 medical cost per \$1 spent on disease management
 - (Rand, 2014)



ROI vs VOI

- » Value on investment (VOI)
- » 91% of employers report offering wellness programs for reasons other than medical cost savings
 - » Reduce employee health risk
 - » Improve employee job satisfaction
 - » Improve employee morale
 - » Improve employee retention
 - » Improve productivity
 - (Aldana, 2016)



VOI – Improved Productivity

- » 3-year study of 5 plants in laundry industry.
- » Biometrics (venous), Health Survey, Educational seminar
- » Wellness program participants increased productivity by over 5% **OR**
- » One additional day a month of productivity
 - (University of California, 2017)

ROI – Improved Productivity

Wellness Participation	Increase in Productivity
Sick Employees who improved health	11% INCREASE
Healthy Employees who improved health	10% INCREASE
Healthy Employees who did not improve health	6% INCREASE
Sick Employees who did not improve health	0%

- » Increased employee motivation that stemmed from higher job satisfaction
- » Improved capabilities due to physical and mental wellness
- » Employees who improved exercise and diet saw biggest increases



ROI – Non-Wellness Programs and WC

- » John W. Sullins v. United Parcel Services (2015)
- » Sullins diabetic (1987), diabetic neuropathy (1998)
- » Longtime cigarette smoker
- » Injured in 2003, injuries to both arms and hands
- » Multiple surgeries
- » RTW full duty
- » Retired 2008
- » 44% permanent partial impairment; 10% impairments related to workplace accident
- » WC commissioner awarded 10% permanent partial disability
- » Reversed by Connecticut Supreme Court – awarded 44%



ROI – With Wellness Program

- » 58-year old male with diabetes and obesity herniated his disc at work.
- » Conservative treatment 12 physical therapy (PT) sessions
- » Progress was made; however, required additional 12 PT sessions
- » Additional PT was discontinued after 4 sessions and employee was returned to full duty
- » Case management team emphasized nutrition, weight loss, and disease management
 - (Depres, 2016)



ROI

- » Savings of 8 therapy sessions approximately - \$1,600
- » Savings of job position replacement (*assuming \$20 per hour x 3 weeks) = \$2,400
- » Did NOT require back surgery
- » Did NOT require settlement (~ \$100,000)
- » Total Savings (~\$104,000)



Strategies – Safety Program

» Essential Functions Testing

» Has demonstrated reductions in medical and WC costs from diabetes

- (Despres, 2016)

» Flex and Stretch Program

» Case Study 1 – Ralph Lauren Corp. saw a 54% reduction in soft tissue injury using The Industry Athlete flex and stretch program

» Case Study 2 – PepsiCo distribution center saw a 54% reduction in soft tissue injuries related to material handling

- (Fass, 2016)

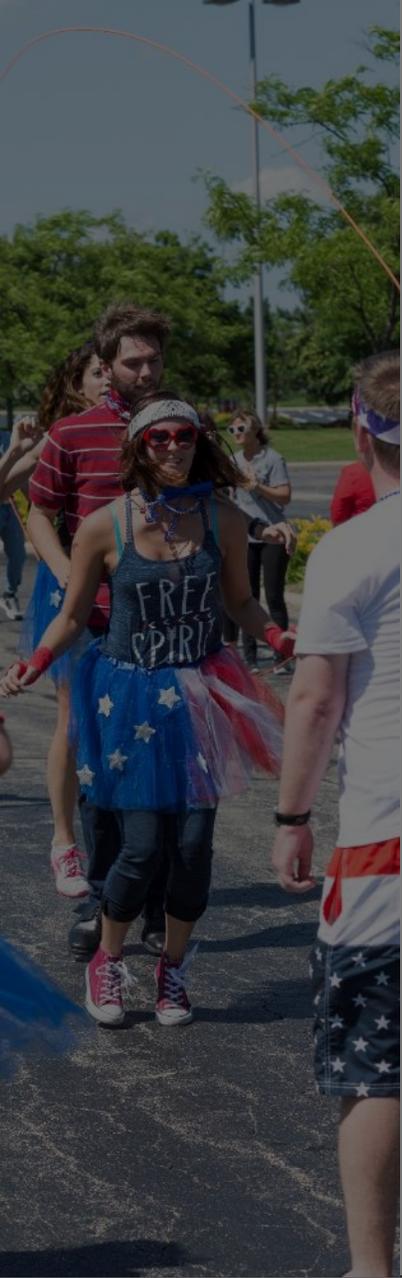
» Ergonomic Assessments

» Work station analysis



Strategies – Wellness Program

- » Targeted Wellness Programs
- » Targeted Wellness Communications
- » Targeted Health Coaching and Pharmacy Coaching
 - » Physician Involvement
 - » City of Cedar Rapids –
 - » From 2013 to 2015 Reduction of Avg Medical and Rx Claims Per Wellness Participant by Health Solutions Risk Category –
 - High Risk – Decreased **69%**! (from \$7,731 to \$2,401)
 - Moderate Risk – Decreased **19.5%** (from \$5,100 to \$4,110)
 - Low Risk – Decreased 12.7% (from 4,249 to 3,713)
 - » From 2013 to 2015 Reduction of Avg Paid Medical and Rx Claims Per Covered Member 13% (from \$13,774 to \$12,049)
 - (Musick, 2017)



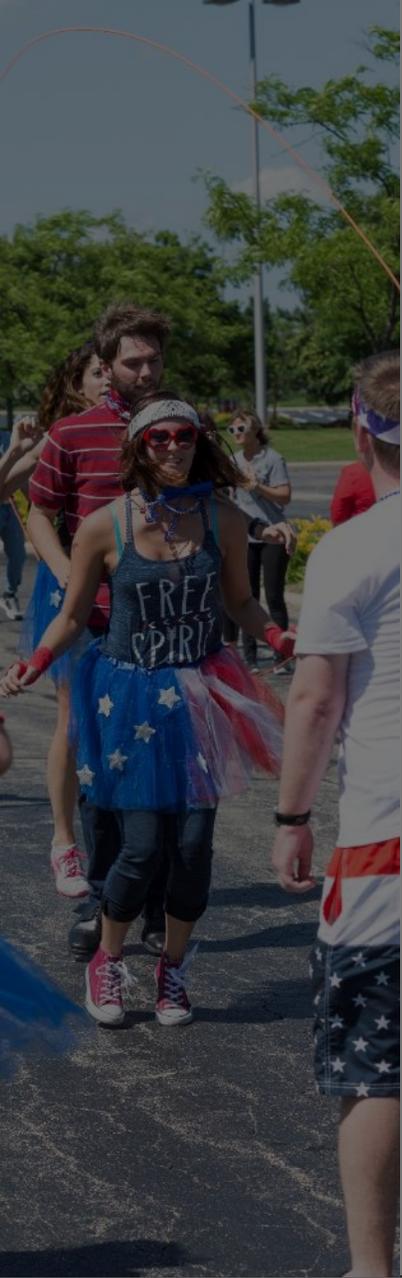
Strategies – Health Coaching

» Diabetes/Pre-diabetes

- » 107 pre-diabetic subjects
- » 14 Personalized in-person sessions (6-months)
- » 49% (~52 participants) were in normal blood glucose levels
- » > 100 milligrams per deciliter leads to unhealthy blood vessels
 - Contributing factor for cardiac disease
- » Improved blood pressure
- » Fasting insulin
- » Decreased perceived stress levels
 - (Casteel, 2015)
- » At \$1,095 per pre-diabetic = Total Cost \$56,940

Strategies – Health Coaching

	Condition Prevalence	# of Repeat Participants with Condition	# Migrated to Healthier State	Incremental Condition Cost per Case	Estimated Cost Avoidance
<i>Out of Control Diabetes</i>	4.5%	30	1	\$16,682	\$16,682
<i>Pre-Diabetes</i>	15.9%	106	27	\$1,095	\$29,565
<i>Metabolic Syndrome</i>	20.5%	91	23	\$4,953	\$113,919
<i>Hypertension</i>	4.3%	19	16	\$1,183	\$18,928
<i>Anemia</i>	3.4%	15	10	\$9,814	\$98,140
Total Estimated Cost Avoidance					\$277,234
Estimated Cost of Program					(\$99,750)
Net Estimated Cost Avoidance					\$177,484

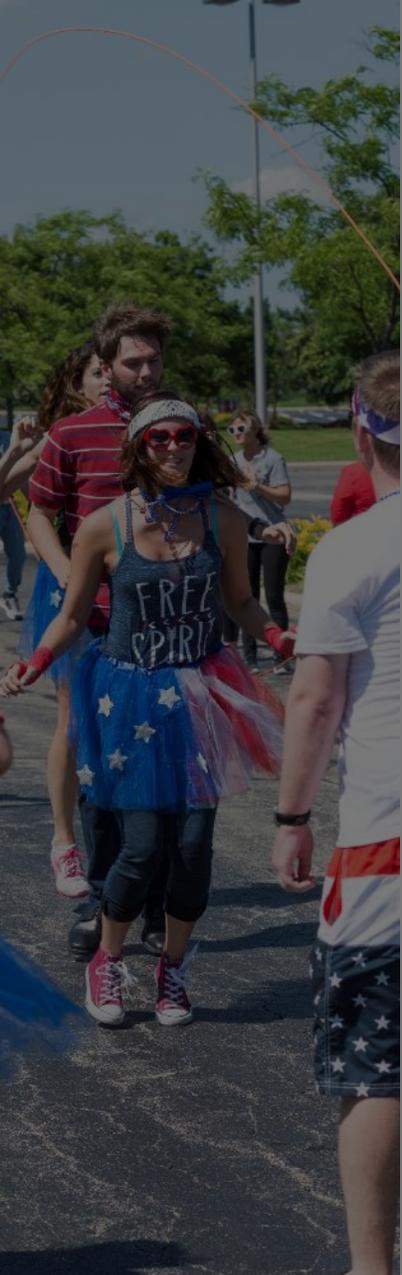


Takeaways

- » It's the same employee population for EB and WC
- » Employees age, muscle loss, weight gain, co-morbidities
- » Establish baseline metrics
- » Implement programs that directly addresses cost driving exposures
- » Safety and Wellness work together
- » Wellness Programs should include health/pharmacy coaching
- » Wellness Programs can assist with WC claims mgt

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Q & A

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