URMC Workplace Musculoskeletal Injury Risk Reduction Program

Designed to Predict, Mitigate, and Prevent Workplace Injury

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URMC Workplace Injury Risk Management Program

Screen
- Questionnaire
- Physical Examination
- 3D Imaging

Risk Stratification
- High Risk
- Low Risk

Intervention
- 12-Week Medically Supervised Condition Management Program
1. Workplace Health Is Expensive

- Occupational Injury and Illness in the United States is a HUGE economic burden\(^1\)
  - $250 Billion!
  - Average Claim in New York State $47,000\(^2\)
  - New York has the 5\(^{th}\) highest worker’s compensation premium cost and the highest premium tax in the nation\(^2\)

- Musculoskeletal injuries are the largest single category of workplace injury\(^3\)

- Some of these injuries are preventable\(^4\)

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2. Musculoskeletal Health is Modifiable

Drivers of health

- 20% Medical services
- 30% Healthy behaviors
- 40% Social and economic factors
- 10% Physical environment

Where money spent

- 88% Medical services
- 4% Healthy behaviors
- 8% Other
3. Traditional Workplace Wellness Programs Can be Augmented

**Objective Measures**
- Age
- Height
- Weight
- BMI
- Blood Pressure
- Heart Rate
- Anthropomorphic measurements (waist circumference)
- Lab tests
  - Cholesterol, HDL, Triglycerides, Glucose

**Condition Management Offerings**

*Among Firms Offering Health Benefits, Percentage Offering a Particular Wellness Program to Their Employees, by Firm Size, 2009*

- Offer at Least One Wellness Program* - 93%
- Web-based Resources for Healthy Living* - 79%
- Gym Membership or Exercise Facilities* - 63%
- Smoking Cessation* - 61%
- Wellness Newsletter* - 59%
- Weight Loss Programs* - 53%
- Classes in Nutrition/Healthy Living* - 47%
- Personal Health Coaching* - 36%

*Estimate is statistically different within type of wellness program between All Small Firms and All Large Firms (p<.05).
A Musculoskeletal Component Significantly Improves ROI When Appropriately Employed

- Prevention programs work
  - Reduce incidence
  - Reduce severity
  - Reduce cost
    - Benefit to cost ratio ~3.4/1

- Prevention programs with a musculoskeletal specific component WORK BETTER!
  - Benefit to cost ratio ~16.5/1

Questionnaire

- 3 Domains
  - Individual
  - Ergonomic
  - Psychosocial
- Computer Adaptive
- ~8 Minutes
Physical Screen

• Technology Enhanced Physical Examination
  • Anthropomorphic Measurements
  • Biometrics
  • Functional Movement Patterns
  • Strength
  • Flexibility
  • Aerobic Endurance

• <8 Minutes

*Proprietary coding = more accurate joint measurement and expanded capability compared to Microsoft Kinect SDK
Risk Stratification/Predictive Analytics

- Training Data
  - Expert Opinion
  - US Department of Labor
    - Bureau of Labor Statistics
  - Large Worker’s Compensation Insurance Database
  - OrthoMetrics™ Database
  - National PROMIS Database
    - Licensed Access

- Predictive Model
  - Probability of Musculoskeletal Injury
    - High Risk
    - Low Risk
Intervention

- All Employees (Low and High Risk Groups)
  - Individualized On-Site Consultation with Musculoskeletal Health Professional
    - Discussion of test results
    - Personalized injury risk assessment
    - Individualized fitness/injury prevention recommendations
    - Opportunity to participate in self-pay group fitness, weight loss, nutrition acupuncture, or other programs offered through URMC or local partners*

*Offerings vary by program and location
Intervention

• High-Risk Only

• Employer Subsidized 12 Week Condition Management Program
  10 Structured visits with medical/performance specialist
  (Physical Therapist, Athletic Trainer, Certified Strength and
  Conditioning Specialist)
  • 1 Specialty visit (Registered Dietician, Acupuncturist, Active Release
    Therapist (Medical Massage), Athletic Performance Specialist)

• Transition to Maintenance Program at 6-8 Weeks
  • Discounted membership at YMCA
• Large Enterprise Pilot
  • 6 – month results
    • 819 Employees Screened
    • 339 Eligible for CM (41%)
    • 171 Participated in CM (21%)
**Employee Profile**

- **Demographics**
  - Age
  - Gender
  - Education
  - Financial Stress

- **Health Related Behaviors**
  - Smoking
  - Alcohol Use
  - Physical Activity
  - Physical Fitness

- **Biometrics**
  - BMI
  - Body Fat %
  - Waist to Hip Ratio

- **Workplace Satisfaction and Attendance**
  - Job Satisfaction
  - Satisfaction with Wellness Offerings
  - Presenteeism
  - Absenteeism
Bio-Psycho-Social Profile

Percent of Employees that Exhibit the Following Traits

- Physically Fit: 62%
- Anxiety: 30%
- Fatigue: 21%
- Sleep Disorder: 24%
- Good Social Function: 97%
- Pain: 49%
- Depression: 57%
Screen Satisfaction

Overall Experience:
- Excellent: 24%
- Good: 74%
- Poor: 2%

Location:
- Excellent: 24%
- Good: 72%
- Poor: 4%
I Would Participate Again

- 64% Agree
- 34% Disagree
- 2% Strongly Disagree
- 0% Strongly Agree
Participating in this Program will Positively Impact my Health

- 46% Agree
- 53% Disagree
- 1% Strongly Agree
- 0% Strongly Disagree

I Would Recommend this Screening to My Coworkers

- 27% Agree
- 0% Disagree
- 1% Strongly Agree
- 72% Strongly Disagree
Condition Management Results

OrthoMetrics Scores

<table>
<thead>
<tr>
<th>Category</th>
<th>Before C. M.</th>
<th>After C. M.</th>
<th>Enterprise Average</th>
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<tr>
<td>Individual Score</td>
<td>76.45</td>
<td>81.35</td>
<td>77.07</td>
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<tr>
<td>Physical Screen Score</td>
<td>76.33</td>
<td>85.44</td>
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<td>Ergonomic Score</td>
<td>70.2</td>
<td>71.25</td>
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<tr>
<td>Psychosocial Score</td>
<td>55.85</td>
<td>76.2</td>
<td>64.39</td>
</tr>
</tbody>
</table>
Condition Management Results

PROMIS Scores

- Physical Function
- Anxiety
- Fatigue
- Sleep Disturbance
- Social Function
- Pain Interference
- Depression

- Before Condition Management
- After Condition Management
- Average Employee
PROMIS Scores

- Depression: 19%
- Pain Interference: 28%
- Social Function: 11%
- Sleep Disturbance: 25%
- Fatigue: 40%
- Anxiety: 30%
- Physical Function: 14%
Condition Management Results

Weight

-18%  -16%  -14%  -12%  -10%  -8%  -6%  -4%  -2%  0%

WEIGHT  BODY FAT  BMI  HIP/WAIST
Condition Management Results

**Improved My Knowledge**
- Agree: 76%
- Disagree: 24%

**Positively Impacted My Health**
- Agree: 80%
- Disagree: 20%
Client Feedback

*Great program, really helped me to push my self and had a definite impact on my fitness. My shoulder pain is improved and I learned exercises to treat it. Would definitely recommend to peers.

*I think this was a great program and helped to be more aware of how I was lifting and having better posture.
*The program was a great eye opener. Very Informative!

*The program helped prevent a workplace injury. Shortly after completing the program I had an incident transferring a patient and I was able to transfer them in a way that prior to completing the program would have caused a serious injury. Thank you!

*I started the program with some mild nagging back pain, It is now gone, Katie was an excellent coach/resource.

*Program is a great benefit to U of R staff (especially nursing population). It is extremely beneficial to our overall health and preventing workplace injury.
Current Partners

• All Local Businesses
  • 4 current
    • Healthcare (2)
    • Shipping and Delivery (1)
    • Police and Fire (1)
  • 3 pending contracts
    • Healthcare (1)
    • Shipping and Delivery (2)

• Data
  • Individual
    • Personalized Assessment of Risk
    • Comparison to National and Group Averages
      • OrthoMetrics™ Risk Score
      • Individual, Physical, Ergonomic, Psychosocial Scores
      • Upper Body Strength, Lower Body Strength, Aerobic Endurance Flexibility
      • Biometrics
  • Enterprise
    • Summary Assessment of Workforce Risk
      • Entire Enterprise or By Division Depending on Size
    • Comparison to National and Group Averages
    • Condition Management Program Results
Large Enterprise Pilot Project

- Initiated – 1/1/2016
  - 1,500 employees
  - Condition Management Enrollment Target:
    - 18% (270)

- 6 Months Into the Pilot
  - 819 Employees Screened
  - 339 Eligible for CM (41%)
  - 171 Participated in CM (21%)
Preliminary Benefit to Cost Ratio = $18.3/1

85 Total Claims Less Than the Same Period Last Year (average MSK claim $32k) = $2.72M (6 month preliminary data- Year end data currently being evaluated)
VALUE

• Occupational illness is an enormous economic burden.
• Musculoskeletal injury accounts for the majority of that burden.
• MSK assessment and intervention has significantly increased wellness program efficacy for other groups
  • reduces absenteeism, presenteeism, and workers compensation costs related to MSK injuries.

• The URMC Orthopaedics Workplace Musculoskeletal Wellness Program
  • Utilizes a combination of scientifically validated questionnaires and an automated physiologic screen, to identify workers at highest risk for musculoskeletal injury.
  • Allows employers to target resources to those individuals who need it most.
  • Incorporates a proven effective MSK condition management program
  • Allows employers to scale program to budget
  • Allows individuals to identify and address those factors that contribute most to their risk of injury on their own.
  • Allows for longitudinal assessment of program effectiveness
Thank You!

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