



**GOErgo™** presents  
The Global Organization of Ergonomics

*The 20th Annual*

**appliedergonomics**

CONFERENCE 2017

*Practitioners talking with practitioners*

To love what you do and feel it matters – how  
could anything be more fun?

Katherine Graham

Nancy Larson

Everything that needs to be said has already been said. But since no one was listening, everything must be said again.

Andrew Gide (1869-1951)

# Definition

er\*go\*nom\*ics \ er\*go\***nom**\*iks \ n  
[erg- + -nomics (as in bionomics)]  
(1949): an applied science concerned  
with the characteristics of people that  
need to be considered in designing and  
arranging things that they use in order  
that people and things will interact most  
effectively and safely – called human  
engineering – er\*go\***nom**\*ic\adj

It is not the strongest of the species that survive  
nor the most intelligent but the one most  
responsive to change.

Charles Darwin (1809-1882)



# Impact of Desktop Computers





# American Express Financial Advisors

1. The Best Place to Work Culture.
2. The customer service group, consisting of 1,000 employees, decided to reorganize from product-based customer service groups into 8 cross-functional groups, based upon customer location.
3. The Facilities Management VP, Bob Gilbert, was very forward thinking.
4. Existing workstations, furniture, and work environments did not support computers nor computer-based work.
5. MSDs were increasingly becoming a work-related concern.
6. Susan Dray, usability human factors expert worked in the company. I was a consultant ergonomist.

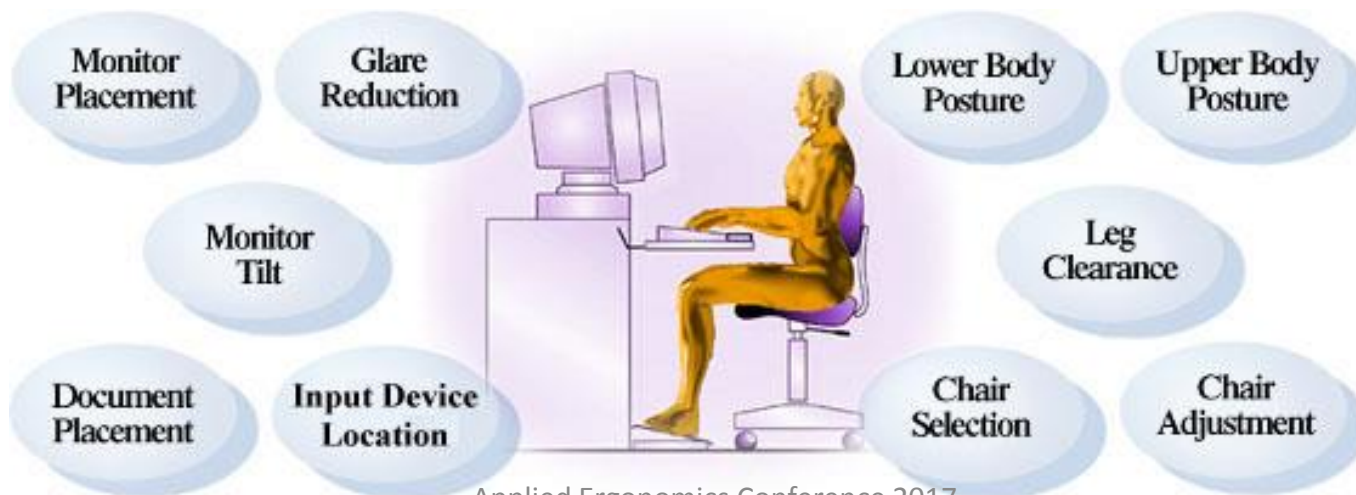


# Workplace Improvement Project

- Champion and Coordinator
- Management Commitment
- Cross Functional Initiatives
- Measurement Procedures
- Opportunities

# Collaboration

- Facilities & Interior Design
- Business Departments
- HR/Risk Management
- Legal
- Communications
- Medical
- Employees
- Procurement
- Upper Management
- Information Technology
- Ergonomist



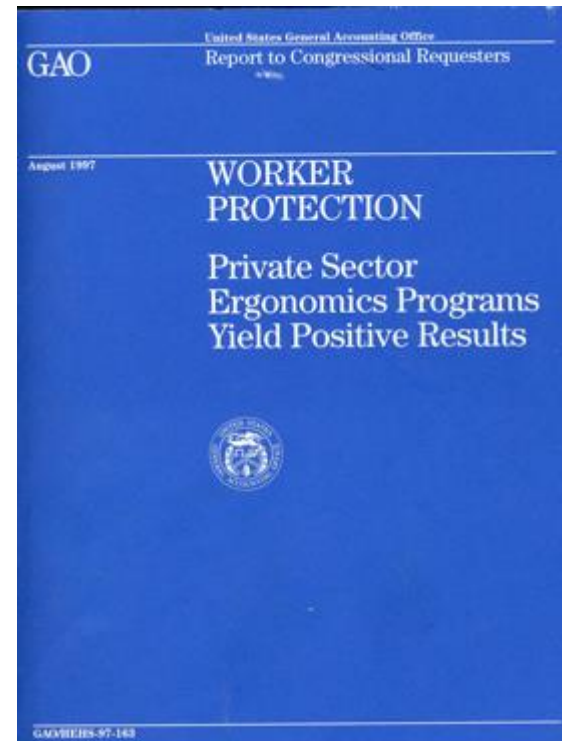
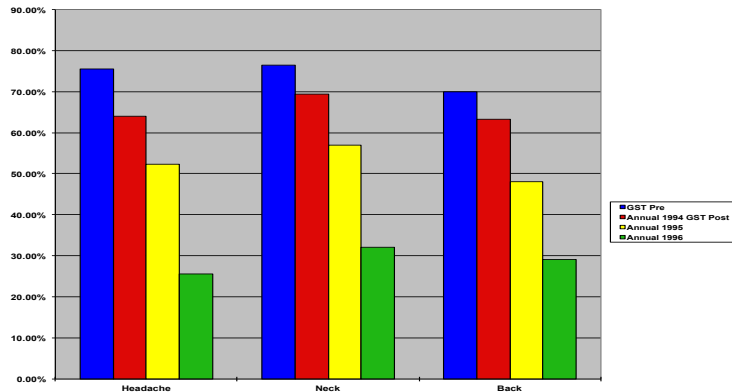


**KEEP  
CALM  
AND  
JUMP OUT  
THE WINDOW**

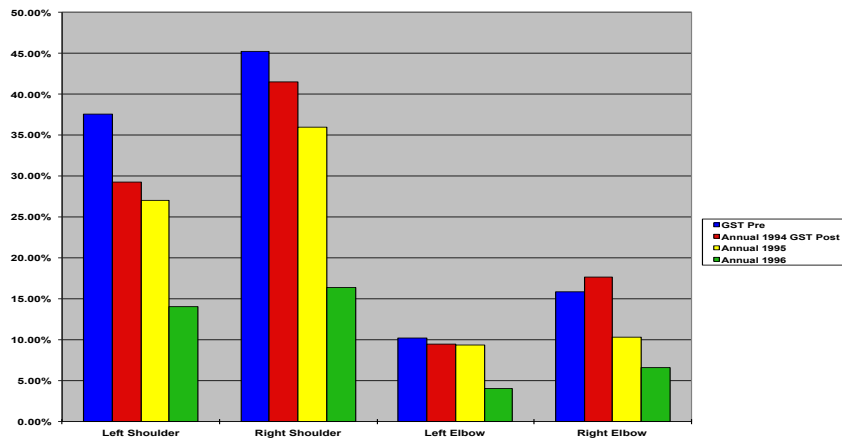


# Results

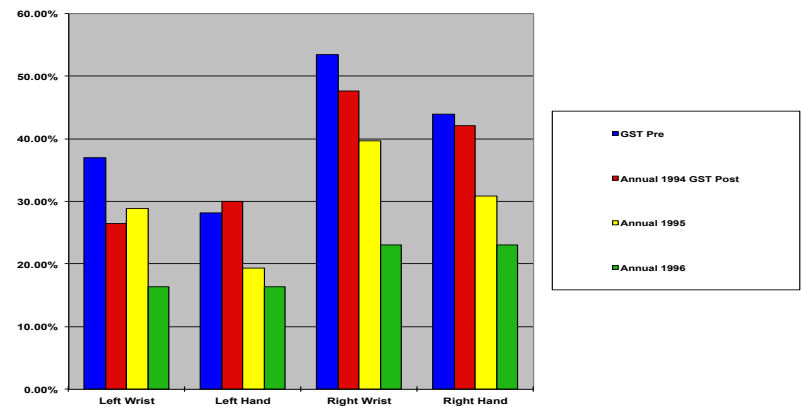
## Headache/Neck/Back



## Shoulders and Elbows



## Hands and Wrists





# OSHA Ergonomics Program Standard 2001

- Applies to: general industry
- Effective dates:
  - Full Standard: October 14, 2001
  - MSD management section: January 16, 2002
- “Grandfather Clause” applies:
  - If programs in place before Nov. 14, 2000
  - If program complies with paragraphs ‘d’ - ‘y’

# Focus of the Standard

- The standard is ‘reactive’
  - Trigger = MSD incident and exposure beyond specified action limits
    - MSD must be work-related *AND*
    - Requires treatment beyond first-aid
  - OR
  - MSD signs or symptoms that last 7 or more consecutive days

# Required Program Components

- Management leadership
- Employee participation
- Job hazard analysis and control \*
- Training
- Program evaluation
- MSD management \*

\*Effective January 16, 2002





# 3M Ergonomic Program

## Program Elements

- Internal Standard: GS&HP element
- Job Analysis: standard ergonomic job analysis tool
- Professional Development: knowledgeable and skilled ergonomic resources
- Ergonomic Design Criteria: engineering integration program development

## Technical Leadership

## Engineering Collaboration

- Professional Development





# 3M Program

<b>Ergonomics Technical Expertise 1983</b>
<b>OfficeErgoHelp Website 1998</b>
<b>Ergonomic Solutions Database 1998</b>
<b>Ergonomic Website 2003</b>
<b>Ergonomic Risk Analysis Tool 2003</b>
<b>Ergonomic Design Criteria Tool 2005</b>

## Program Elements

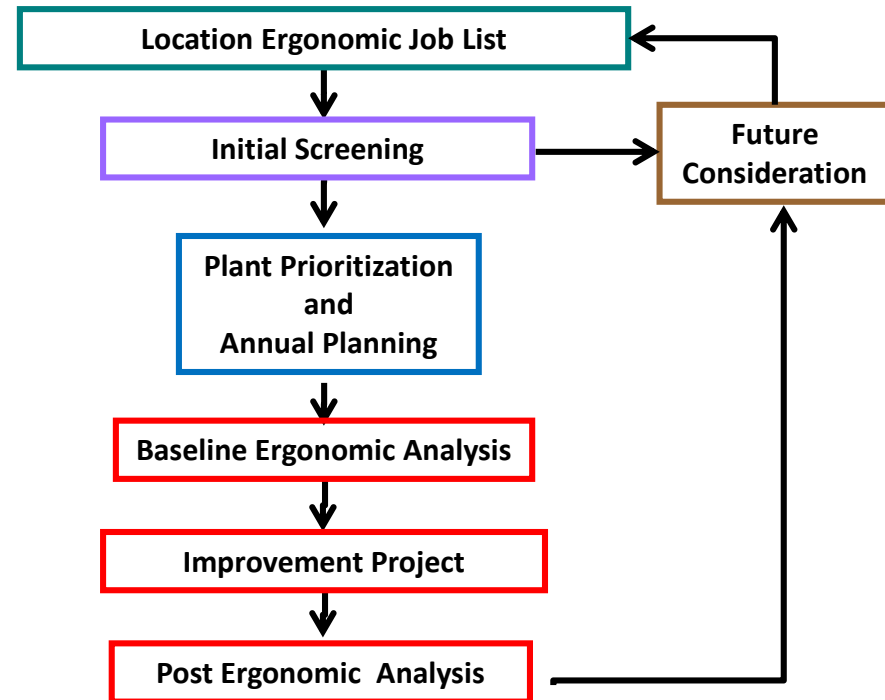
<b>Ergonomics Team Training 1993 - 1997</b>
<b>Ergonomic Program Requirements 1996</b>
<b>Ergonomic Award Process 2000</b>
<b>Global Ergonomic Program 2001</b>
<b>Ergonomic Metric 2004 – 2008</b>
<b>Engineering Design Criteria 2006</b>

# 3M Performance Expectations

- Ergonomic 2003 – 2008 Five Year Goal
  - Assess and control ergonomic risk exposure for specific jobs
  - Annual metric: milestones to monitor progress
- Oversight and Governance
  - Published quarterly performance summary
  - Trending

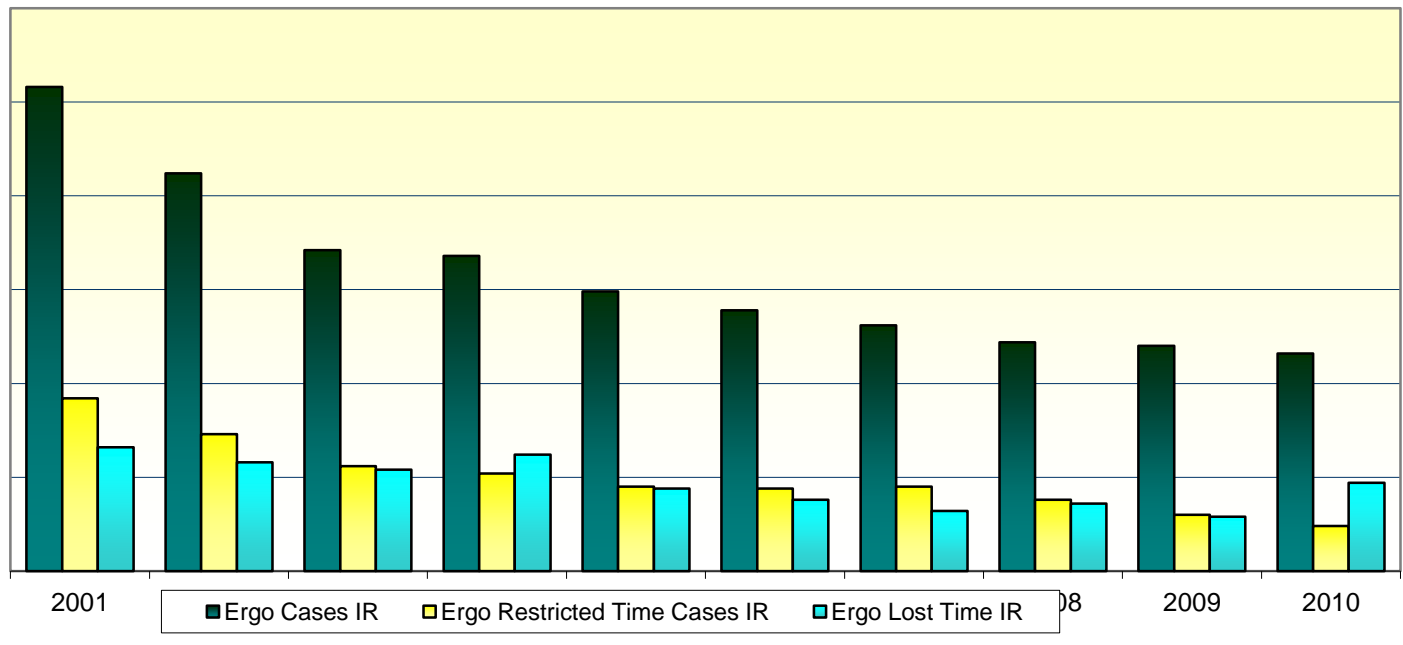
# 3M Ergonomic Improvement Plan

- The Ergonomics Improvement Plan:
  - Global process for continuous, systematic improvement in ergonomic hazard assessment and management
  - Standardized assessments to identify issues, record data and share best management practices
  - Focus is on addressing key jobs.
- Five-year goal with annual achievement targets



# US Manufacturing MSD IR

Ergonomic Recordable Incident Rates: 2004 - 2010







Without data, all you are is another person with an opinion.

Data, without understanding, encourages you to make inappropriate decisions with confidence.

Rena Goldman's White Board

Not everything that counts can be counted, and not everything that can be counted counts.

Albert Einstein (attributed)

William Bruce Cameron? Hilliard Jason? Stephen Ross? Lord Platt? George Pickering?

Things that can be measured will be counted and take on more importance than other things more important but unmeasurable.

Machiavelli

# Global Action Metric

<b>Initial # of Target Jobs</b>	<b>Number of Target Jobs Completed</b>	<b>% of Target Jobs Completed</b>	<b>Region</b>	<b>Percent of Unacceptable Risk Reduced in Target Jobs</b>
914	939	103%	United States	78%
186	222	119%	Latin / South America	56%
425	466	110%	Europe	60%
100	105	105%	Canada	88%
284	288	101%	Asia Pacific	68%
<b>1909</b>	<b>2020</b>	<b>106%</b>	<b>Average:</b>	<b>73%</b>

# Job Analysis Rate Metric (US only)

Forward Stepwise Regression Results, 2004 compared to 2008		
Dependent Variable	Independent Variable(s)	P level
WMSD IR	Target Jobs Reduced IR	< 0.001 *
SR Days IR	% Unacceptable risk Job Reduced	0.032 *
SR Case IR	---	-
LT IR	Target Jobs Reduced IR	0.049 *

There were four significant results of the forward stepwise regression:

1. Job assessment rate was a significant predictor ( $p < .001$ ) of WMSD cases.
2. Predictor of WMSD Cases IR as a function of JAR  $p = < 0.001$  \*
3. Predictor of WMSD Severity Days IR as a function of the % of identified risk reduced  $p = 0.032$  \*
4. Predictor of WMSD Lost-time Cases as a function of Job IR  $p = 0.049$  \*

change  
the

**G** **A** **M** **E**

**"Prediction is difficult, especially of the future."**

Neils Bohr (1885-1962)

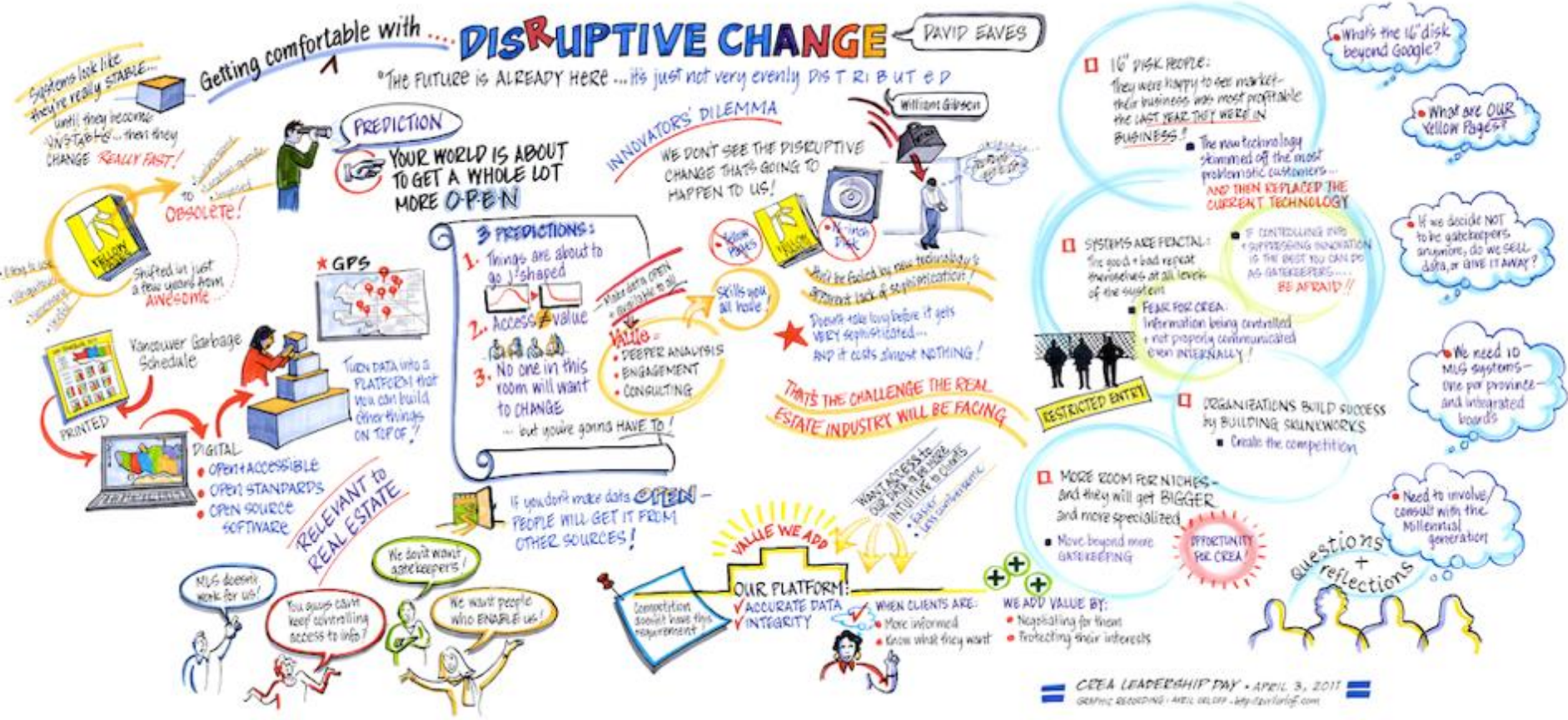
# Change

"There is nothing more difficult to plan, more uncertain of success, or more dangerous to manage than the establishment of a new system; for he who introduces it makes enemies of all those who derived advantages from the old order and finds but lukewarm defenders among those who stand to gain from the new one."

Nick Macchiavelli, Managing Partner, Accenture Italia



# Disruptive Change



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There comes a time in the affairs of man when he must grab the bull by the tail and face the situation.

W.C. Fields







#22352282

"Somebody has to do something, and it's just  
incredibly pathetic that it has to be us."

Jerry Garcia (1942-1995)

# UBUNTU

**“I AM WHAT I AM BECAUSE OF WHO  
WE ALL ARE”**

“Ubuntu – the essence of being human. You can’t be human all by yourself, and when you have this quality – Ubuntu – you are connected and what you do affects the whole World. When you do well, it spreads out; it is for the whole of humanity.” -Desmond Tutu

# Thank You

