Ergonomics and the Aging Workforce: Ergonomics to Retain and Manage Your Aging Workforce

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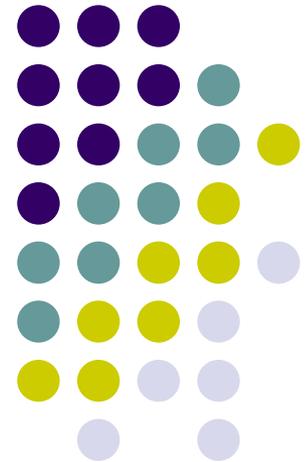
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Create
for Good.

Things are changing

Today's Talk

- Demographics
- Continuum of worker abilities
- Knowledge transfer
- Next Steps

Demographics
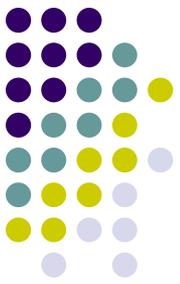
Percent of labor force by age, 2000, 2010, and projected 2050

| 2000 | 2010 | Projected 2050 |

16 to 24 years   25 to 34 years   35 to 44 years   45 to 54 years   55 years and older
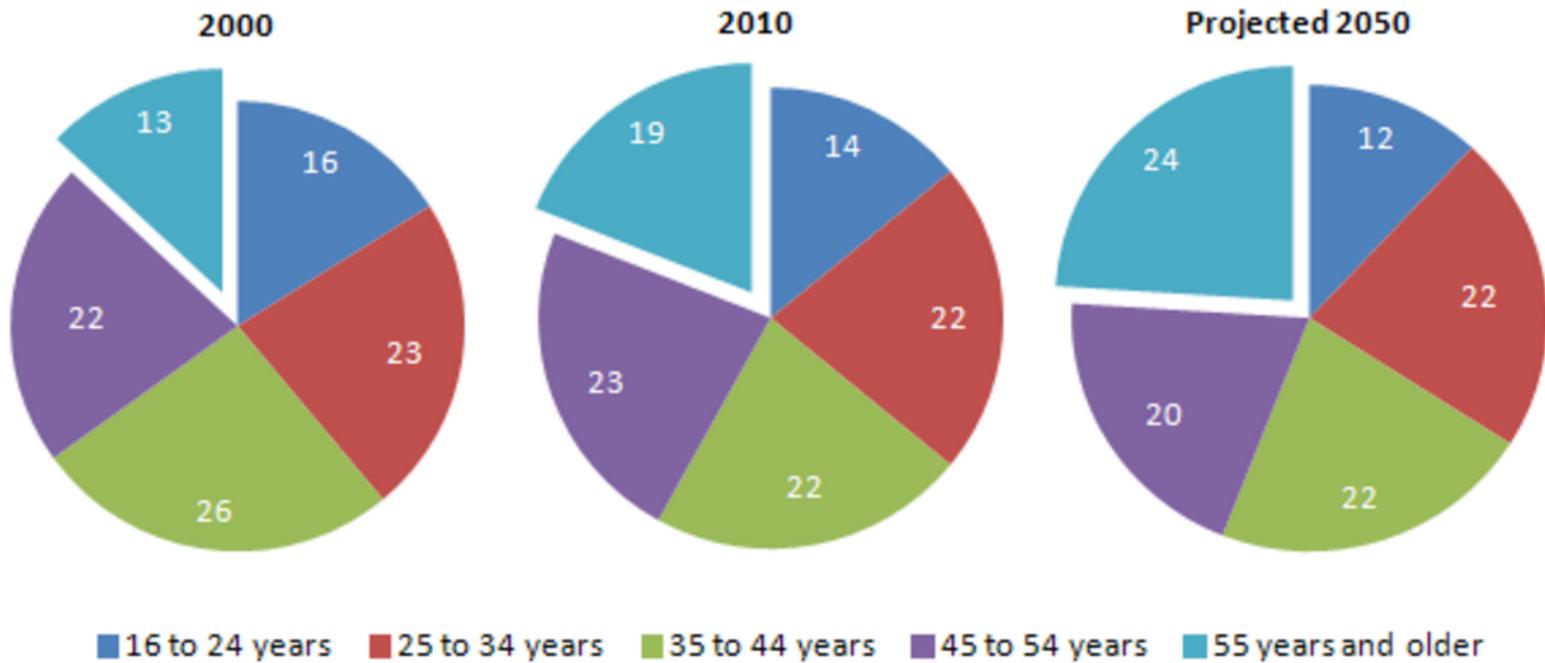
Source: U.S. Bureau of Labor Statistics.

Incidence rate and median days away from work for nonfatal occupational injuries and illnesses involving days away from work, by age, 2012

Size of bubble represents total number of incidents in 2012
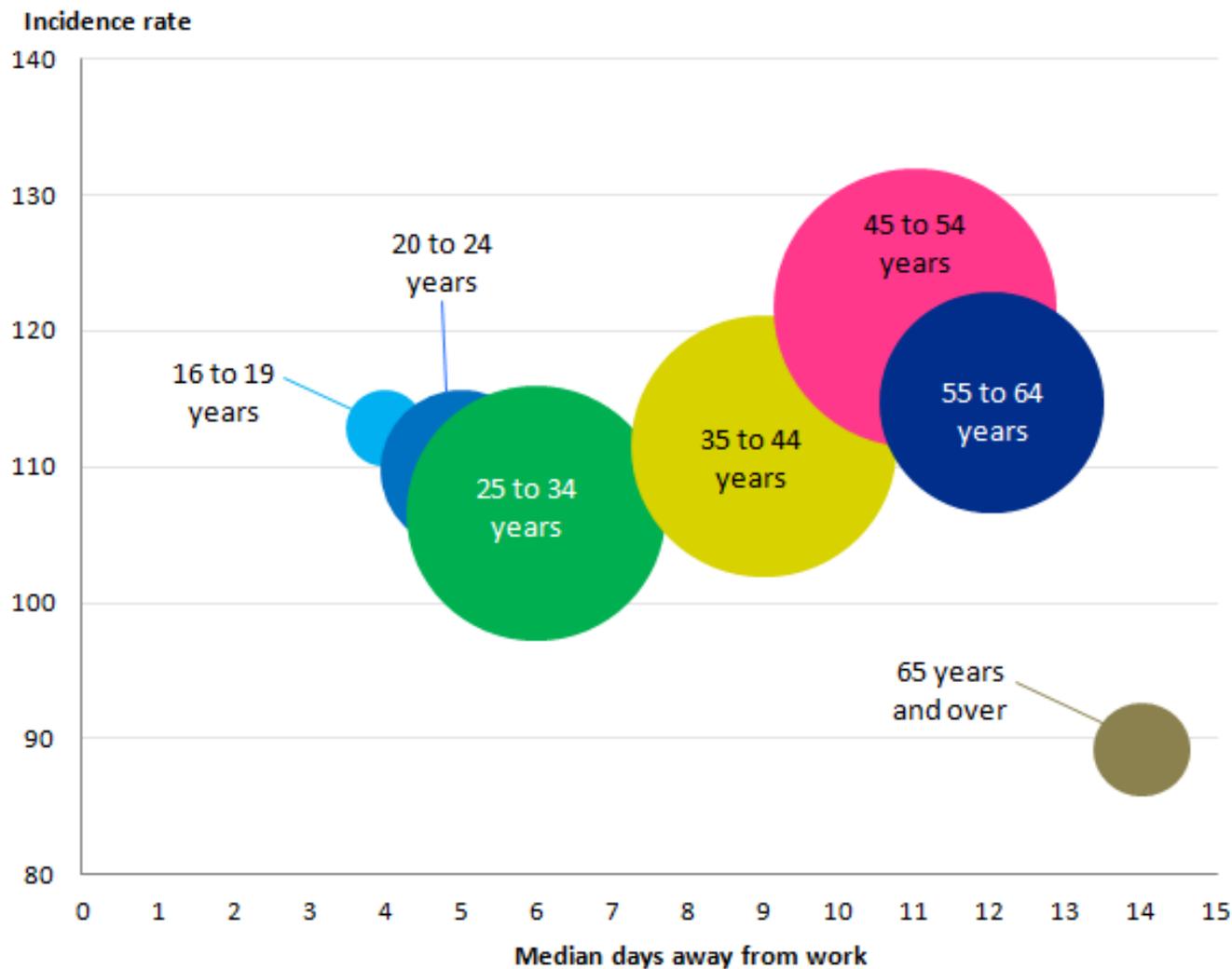
Incidence rate

Note: The incidence rate is the number of incidents per 10,000 full-time workers.
Source: U.S. Bureau of Labor Statistics.

At your workplace

- Workers may be likely to work longer
- Type of work and retirement benefits are significant factors for when a person retires
- Older workers may change jobs, so you may have a new employee who is older
- Because older workers tend to be off more when injured, prevention is key

# In what areas do normal age-related changes occur?

- Physical
  - Vision, hearing, work physiology, lifting, cold stress, reaction time, falls
- Cognitive
  - Stress, working memory, distraction, divided attention

Variability

Design tasks to match demands with worker abilities
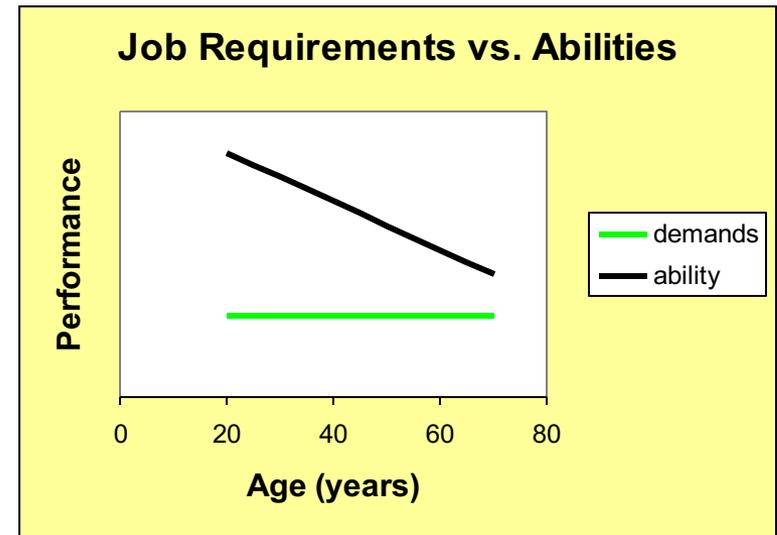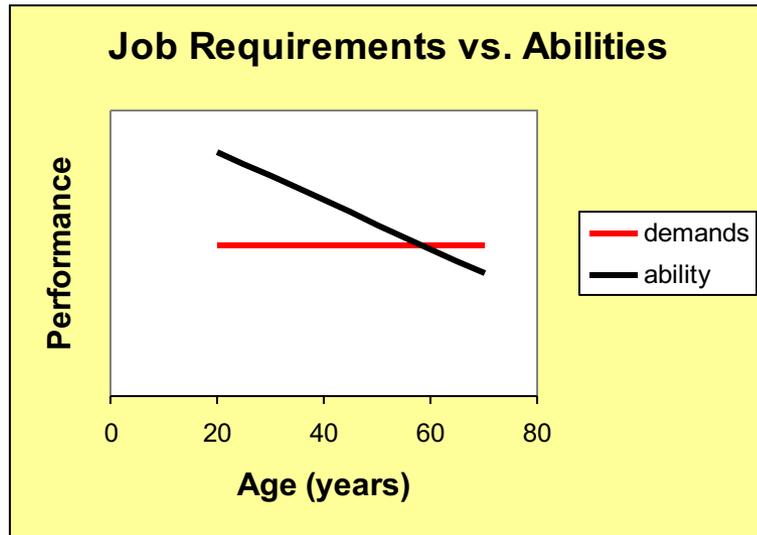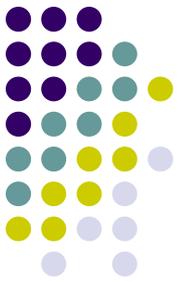
Vision

- Many people over 40, can't bring close objects into focus (safety glasses)
- Adapting to the dark is more difficult
- Peripheral vision decreases
- Decreased transmission of light
- Increased problems with glare

Consider older adults' vision as noisier—we must boost the signal

- Increase the <small>size</small> of the font
- Ensure enough contrast
- Use sans serif font
- Allow users to change font size with browser software

Avoid blue on grey

Improve individuals' interaction with computer interfaces
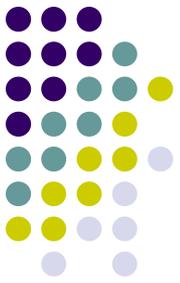
- Guidelines for designing web pages for older adults:

- Making your Website Senior Friendly

- Font size, contrast, organization, mental models, menu levels

- http://www.nlm.nih.gov/pubs/staffpubs/od/ocpl/agingchecklist.html

Safety glasses

Clear Bifocal Safety Glasses

http://www.amazon.com/Bifocal-Safety-Glasses-Yellow-Lens/dp/B000CCD8VY
http://www.phillips-safety.com/Bifocal-Safety-Glasses/Index.htm

Glare Film

http://www.tropictint.net/residential.html
http://www.hotspottinting.com/resbenefits.htm
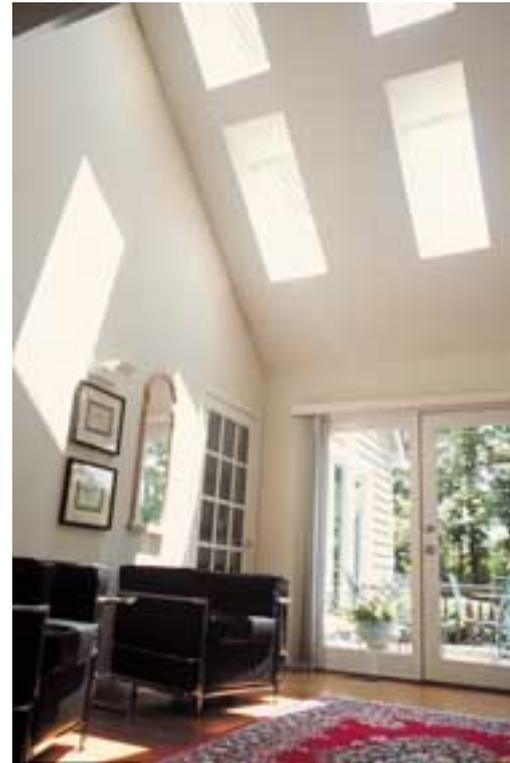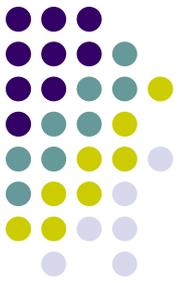
Text Magnifiers or increase font size

Hearing

- Age-related and noise induced
- Men often lose ability to hear high frequency sounds (above 4000 Hz)
- Noise induced hearing loss increases the problem
- Additional challenges with background noise

Increase perception and understanding of auditory signals
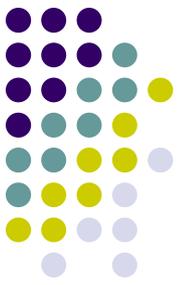
- Allow users to change volume
- Use frequencies below 4000 Hz
- For warning signals, use 500 to 2000 Hz
- Use redundant signals
- Minimize background noise (or at least understand where it is and how it affects performance)

NIOSH Hearing Simulator

http://www.cdc.gov/niosh/mining/products/product47.htm
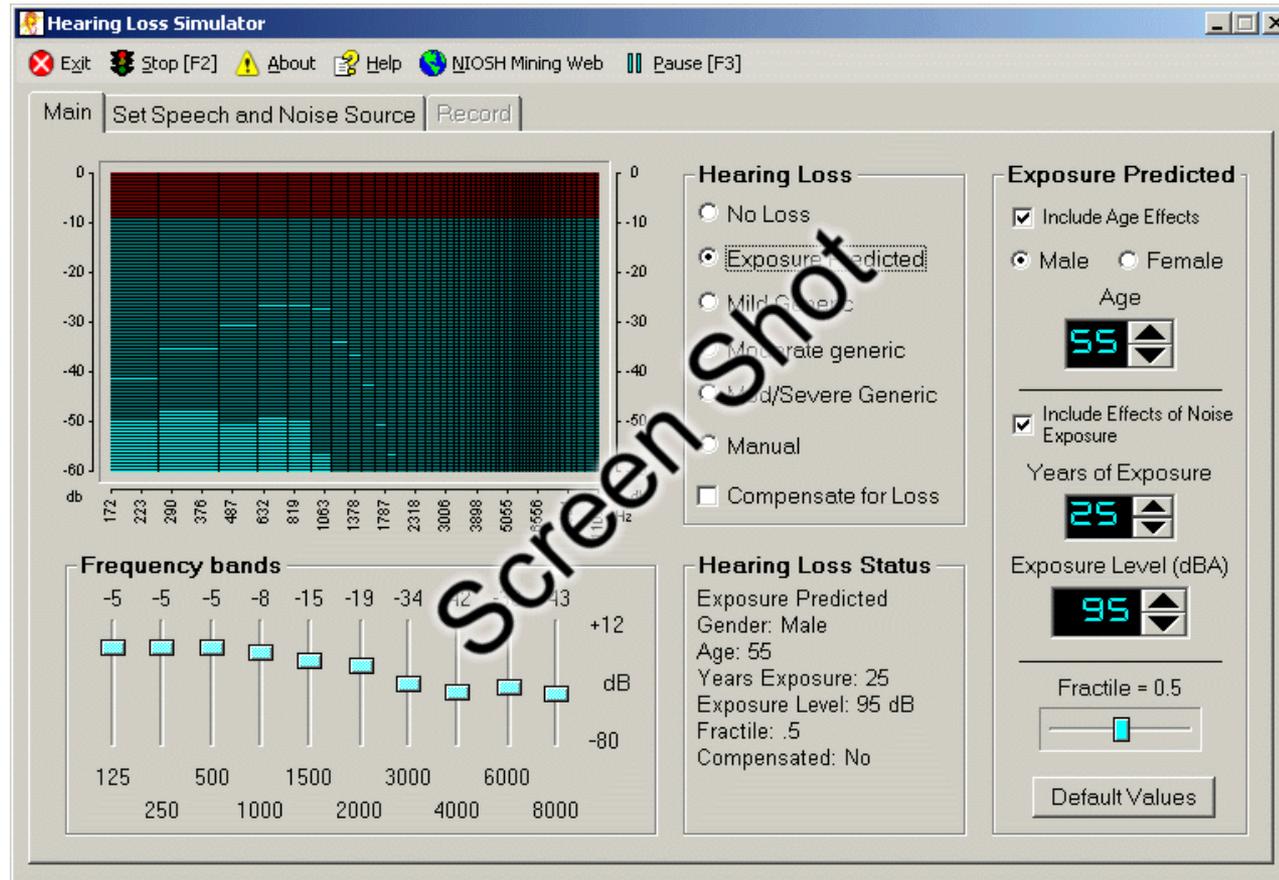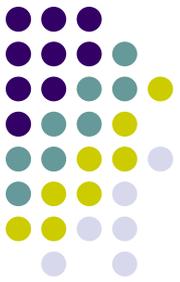
Work scheduling

- Determine if flexible work schedules are possible
- See what proportion of workers would stay if given options
- Job Rotation
- Watch for changing shifts (difficult as we age!)
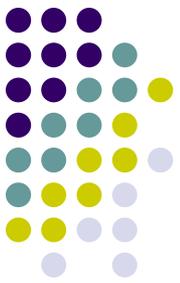
Movement

- Muscle mass decreases start around age 20 and continue throughout one's lifetime
- Reaction times slow
- Slips and falls can be a bigger risk for older workers
- Workers may adopt compensatory actions

Losses in muscle mass and strength can be partially overcome or delayed by regular weight-bearing exercise
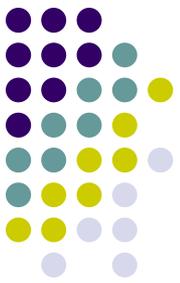
Lower Back Pain

- Can affect up to 80% of people during their lifetime
- Back injuries have high recurrence rates ranging from 40-70%
- Back injuries can result for a variety of reasons
- Back injuries are expensive and have a high social cost (but you already know this!)

Rely on good design for lifting tasks
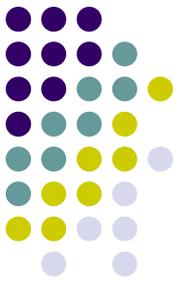
- Heavy lifting jobs should be evaluated for all ages of workers
- Mechanical assists should be used to help all ages of workers
- If you can't minimize weight, make it too heavy to lift
- Ask suppliers for boxes with better coupling
- Don't give the heavy lifting to the younger people!!!!
  - Risk of injury with inexperience
  - Younger workers today are tomorrow's older workers

Hand Tools and Grip Strength
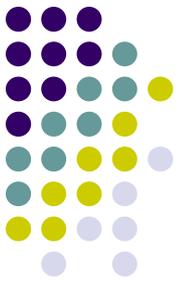
- Preventive maintenance will reduce forces needed

- Changes in grip strength could be a sign of an injury

- Job rotation so that different muscle groups are used

Identify risks for slips, trips, and falls
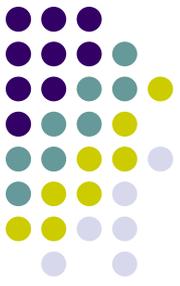
- Locate transition areas (going from light to dark, or from dry to wet) involve higher risks for falls
- Because workers change their gait according to environmental conditions, warning signs can be valuable
- Investigate safety footwear (tread and additional friction devices)
- Investigate alternate walkways

Aerobic capacity

- Older workers tend to lose aerobic capacity before strength
- Aging workers may have complications due to multiple conditions (obesity, high blood pressure)
- Especially important with heat stress
- Wellness programs may help

Job Design and Fatigue

- In our preliminary research findings, at least half respondents stated that they are both mentally and physically tired by the end of the day

- Excess fatigue could lead to burnout

- Burnout is a retention issue

Knowledge Transfer
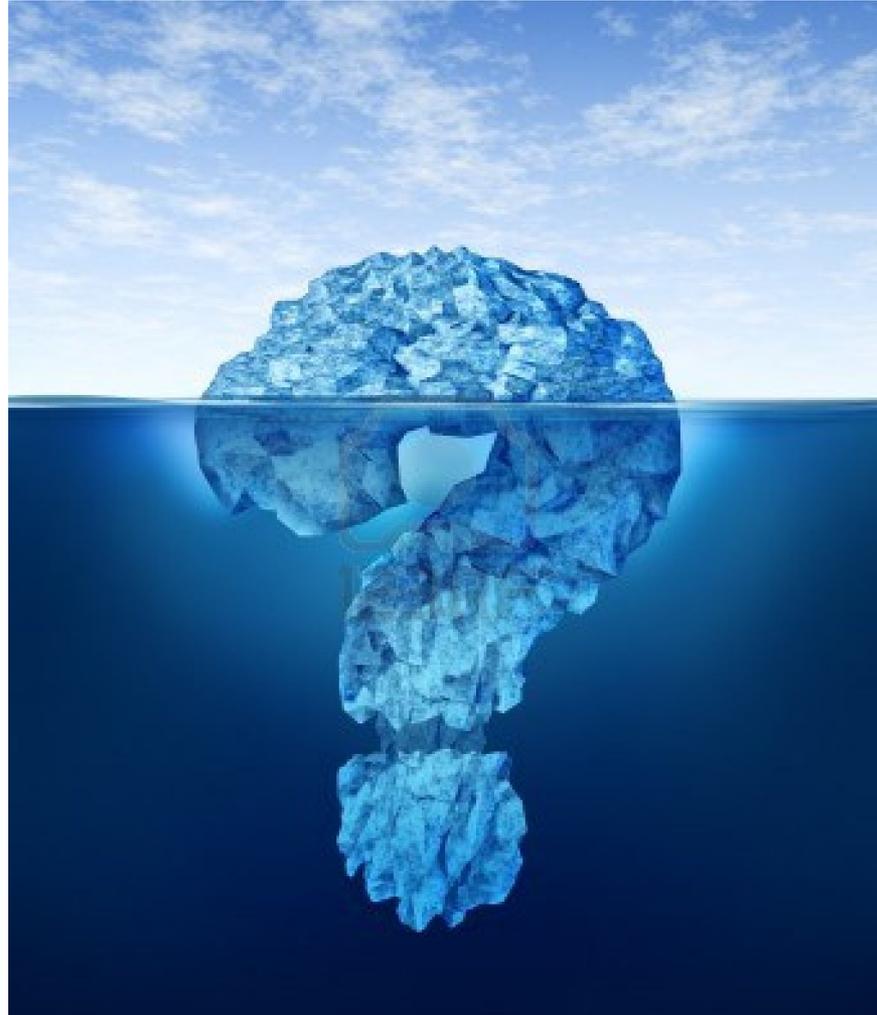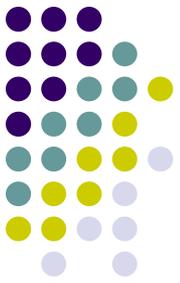
Most companies are at risk for lack of good programs to ensure knowledge transfer

- Have you done a knowledge transfer audit?
- Do you know where your gaps are?
- What types of knowledge transfer programs do you have in place?
  - Good work procedures, documentation?
  - Mentoring?
  - Or none, all knowledge is tribal…

Next Steps: Things to Consider

- Injury and Near Miss Audit
  - Where are your injuries or near misses occurring?
  - In which age groups?
  - In which tenure?
- Safety Involvement
  - Safety teams, Age-diverse? Experience diverse?
- Consider the work environment holistically
  - Safety integrated with process improvement
  - Team involvement
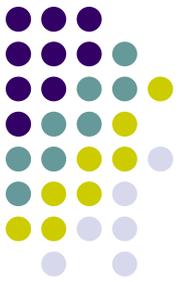
Things to consider

- Where will you have individuals retiring?
  - Succession planning audit?
- Where are your gaps in knowledge transfer?
  - Utilize process improvement techniques to get age-diverse groups working together (e.g., lean tools)
- Try new things and reward effort!

Resources: NIOSH
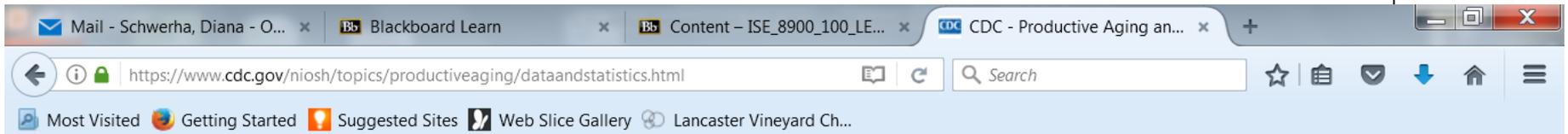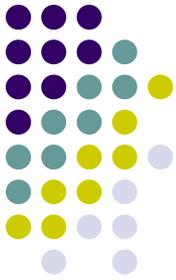
Resources: Boston Center for Aging and Work

Resources: Ohio University Training Modules

- Aging and Ergonomics Online training
  - Will be available Summer 2017
  - Looking for reviewers
  - Will have assessments and hoping to be able to give CEU
  - Contact me at schwerha@ohio.edu for more information
- Integrating Safety with Process Improvement
  - Available after June 1, 2017

Questions?

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