

FUTURE PROFILE OF THE OSH PROFESSIONAL

Lee S. Newman, MD, MA

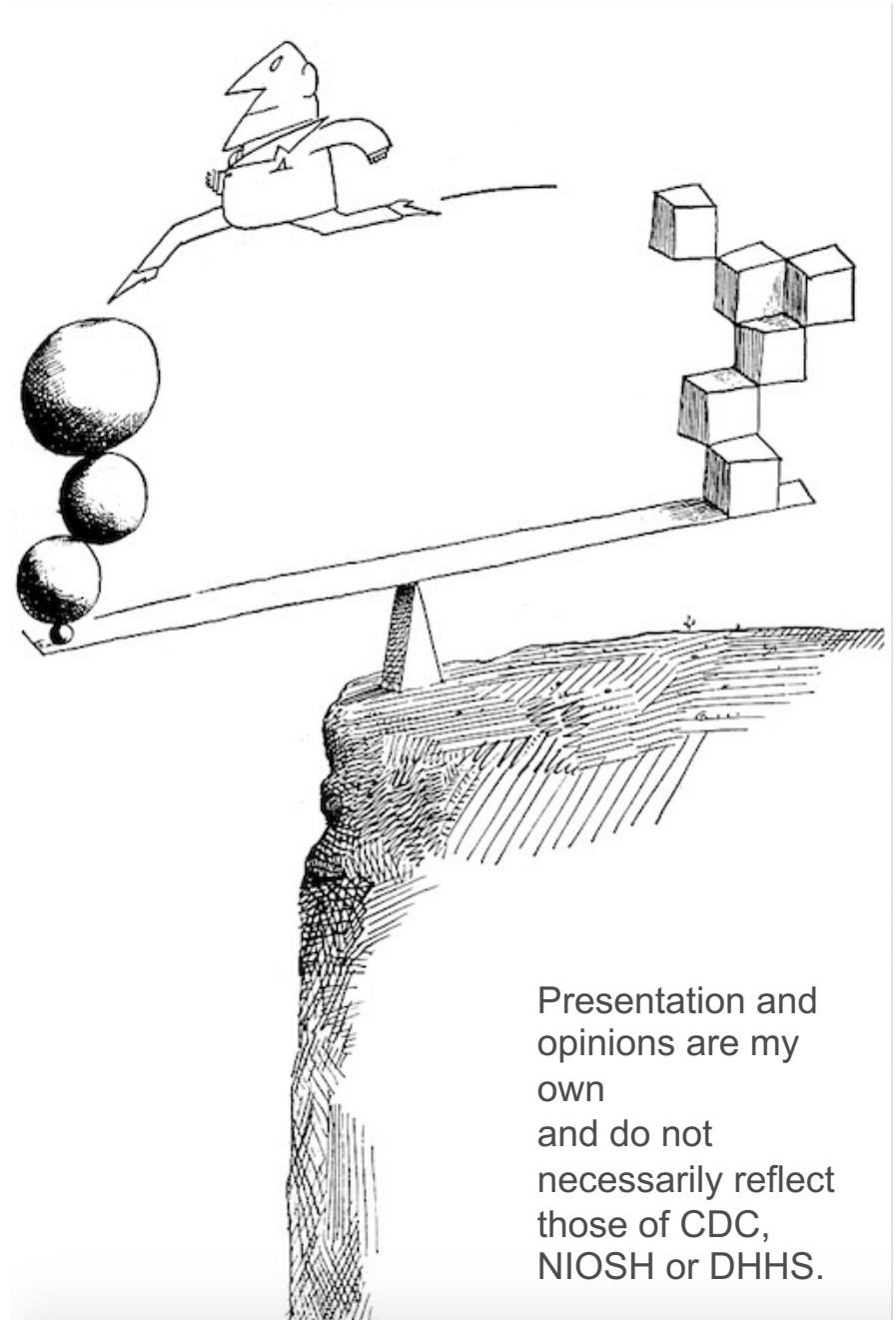
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Goals for today

Reexamine whether what we **currently** do as researchers, practitioners and educators will meet future needs.

Discuss **why** we need to reshape our approaches:
Wicked Problems

Reshaping: the need for future OSH professionals to acquire the *truly “hard” skills*.



Presentation and opinions are my own and do not necessarily reflect those of CDC, NIOSH or DHHS.

HAS THE FIELD OF OSH MAXIMIZED
ITS IMPACT? REACHED ITS POTENTIAL?

WHAT DO WE HOPE WILL BE THE IMPACT
OF THE NEXT GENERATION
OF OSH PROFESSIONALS?

WHAT COMPETENCIES WILL *THEY* NEED?



Review

How Will the Future of Work Shape the OSH Professional of the Future? A Workshop Summary

Sarah A. Felknor ^{1,*}, Jessica M. K. Streit ², L. Casey Chosewood ¹, Michelle McDaniel ³, Paul A. Schulte ², George L. Delclos ³ and on behalf of the Workshop Presenters and Participants [†]



Review

Toward an Expanded Focus for Occupational Safety and Health: A Commentary



Review

How Will the Future of Work Shape OSH Research and Practice? A Workshop Summary

Sarah A. Felknor ^{1,*}, Jessica M. K. Streit ², Michelle McDaniel ³, Paul A. Schulte ², L. Casey Chosewood ¹, George L. Delclos ³ and on behalf of the Workshop Presenters and Participants [†]

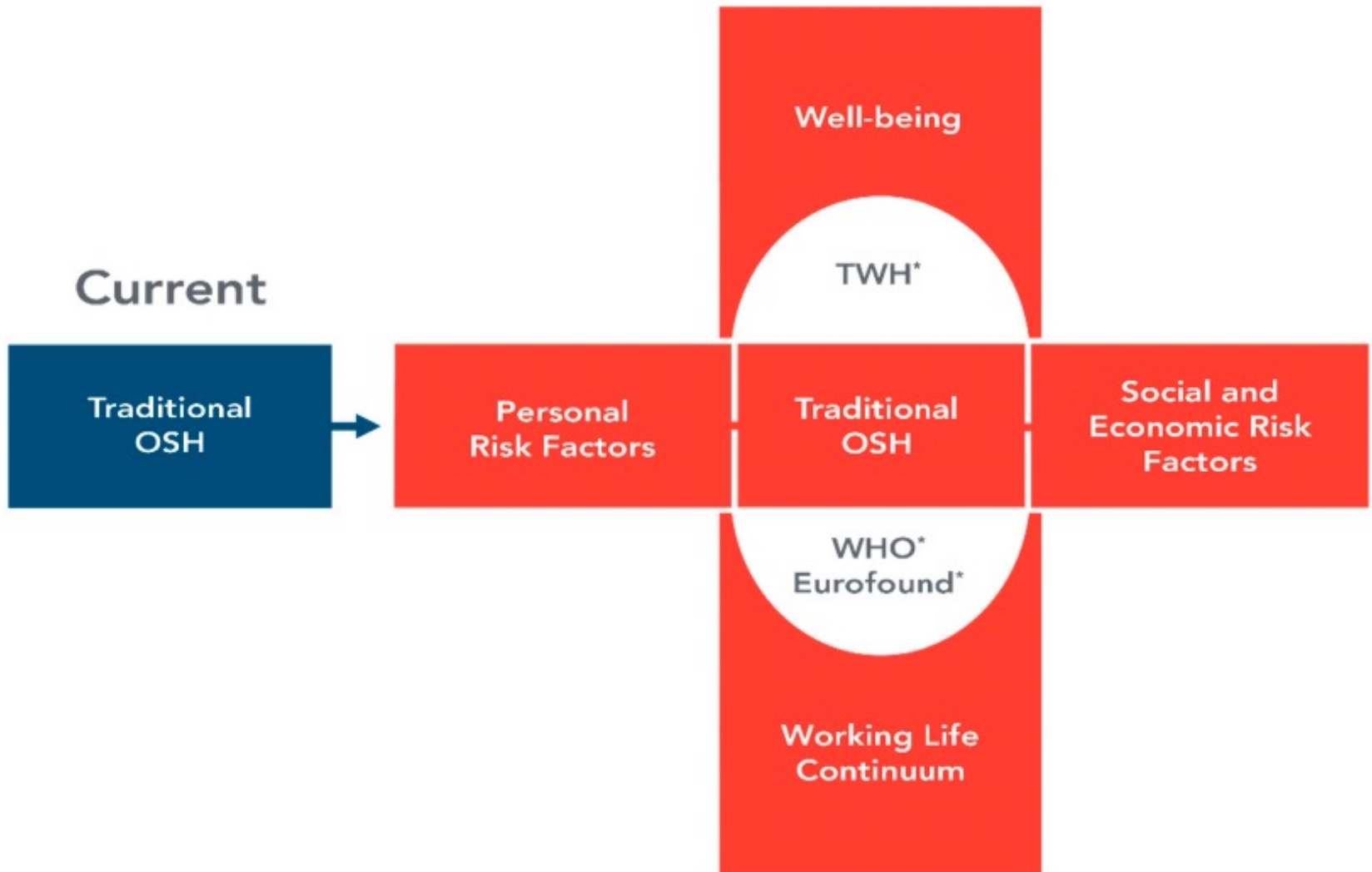
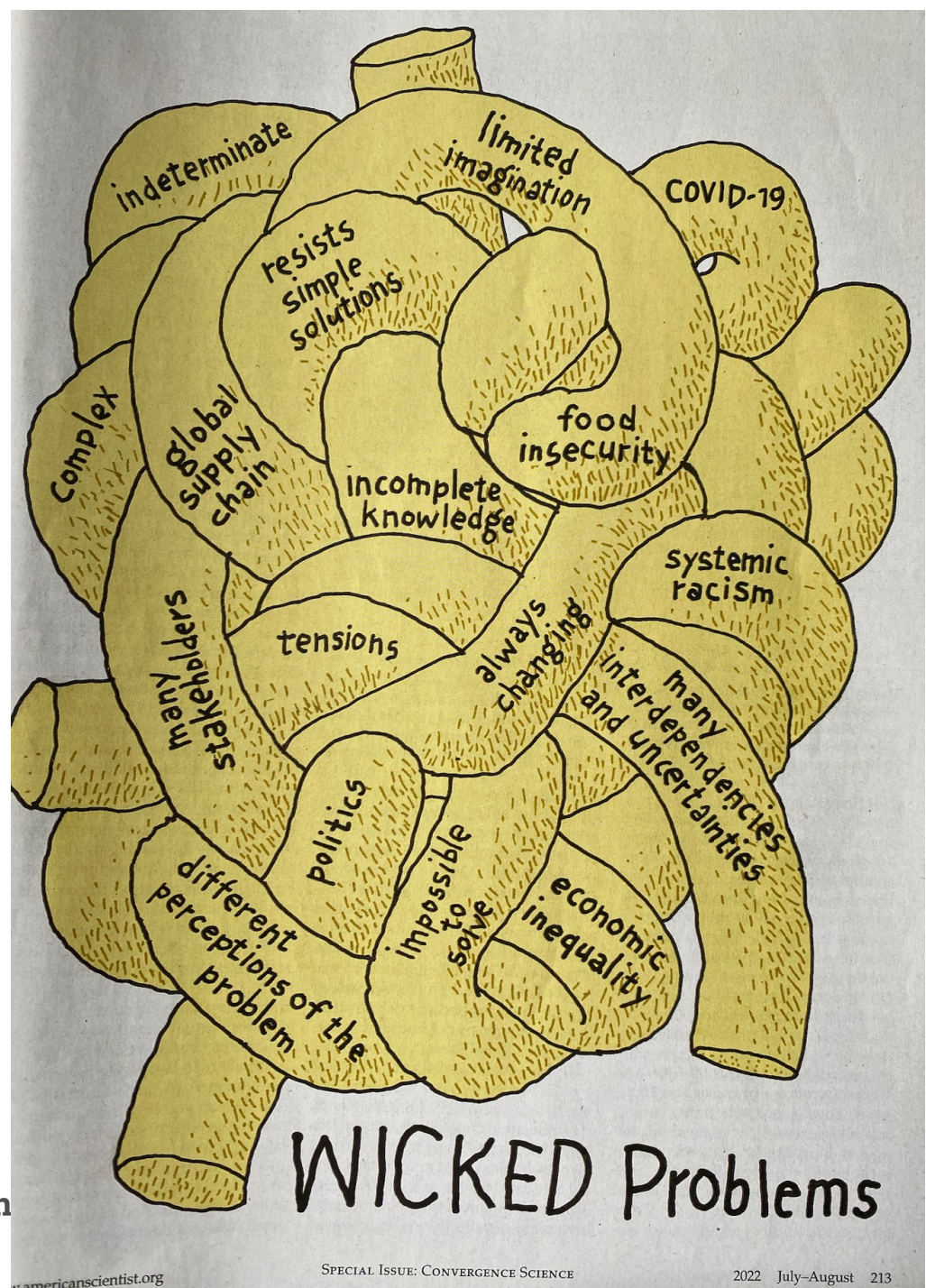


Figure 1. An expanded focus for occupational safety and health. * Horizontal and vertical expansion build on the work of WHO [20], Eurofound [21], and TWH [22,23].

We will *start* to reach our potential as a field when we start to address the most vexing problems



Mortiz and Kawa, *American Scientist* (2022) 110:212

Dilemmas in a General Theory of Planning*

HORST W. J. RITTEL

Professor of the Science of Design, University of California, Berkeley

MELVIN M. WEBBER

Professor of City Planning, University of California, Berkeley

ABSTRACT

The search for scientific bases for confronting problems of social policy is bound to fail, because of the nature of these problems. They are “wicked” problems, whereas science has developed to deal with “tame” problems. Policy problems cannot be definitively described. Moreover, in a pluralistic society there is nothing like the undisputable public good; there is no objective definition of equity; policies that respond to social problems cannot be meaningfully correct or false; and it makes no sense to talk about “optimal solutions” to social problems unless severe qualifications are imposed first. Even worse, there are no “solutions” in the sense of definitive and objective answers.

The World Needs Wicked Scientists

How can we train the next generation of researchers to tackle society's most vexing problems?

Mark Moritz and Nicholas C. Kawa

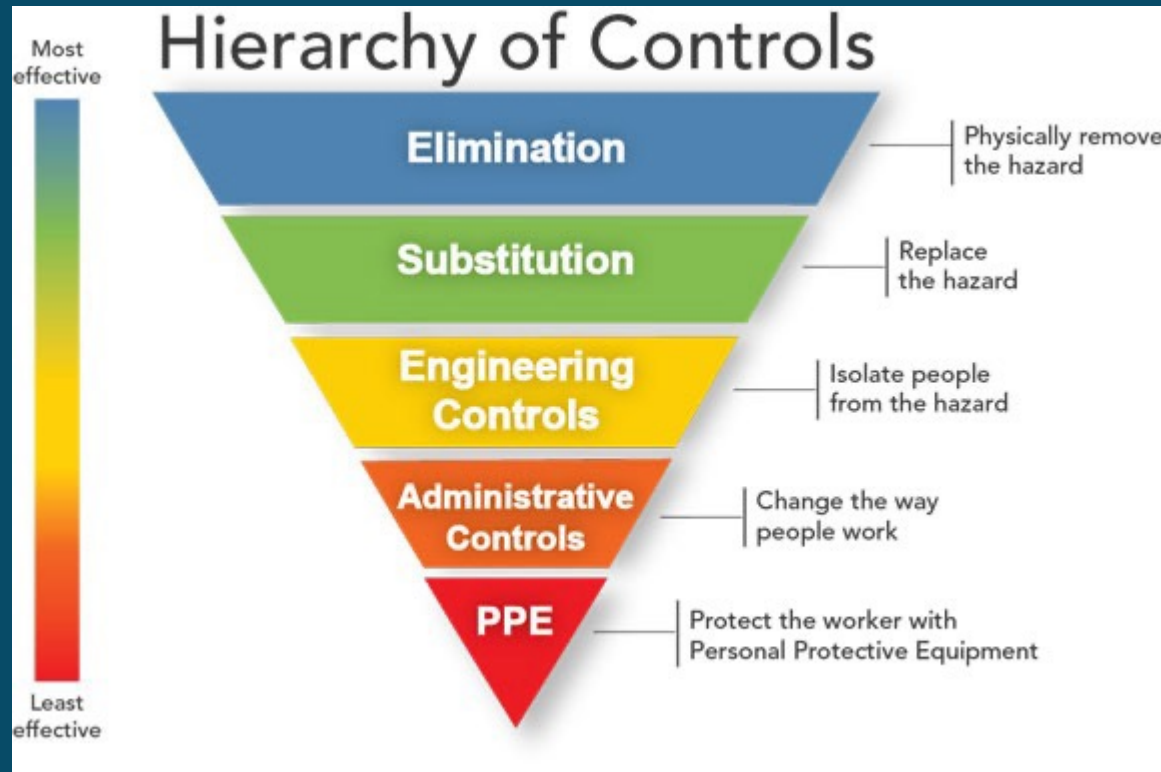
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Center for Health, Work & Environment
colorado school of public health

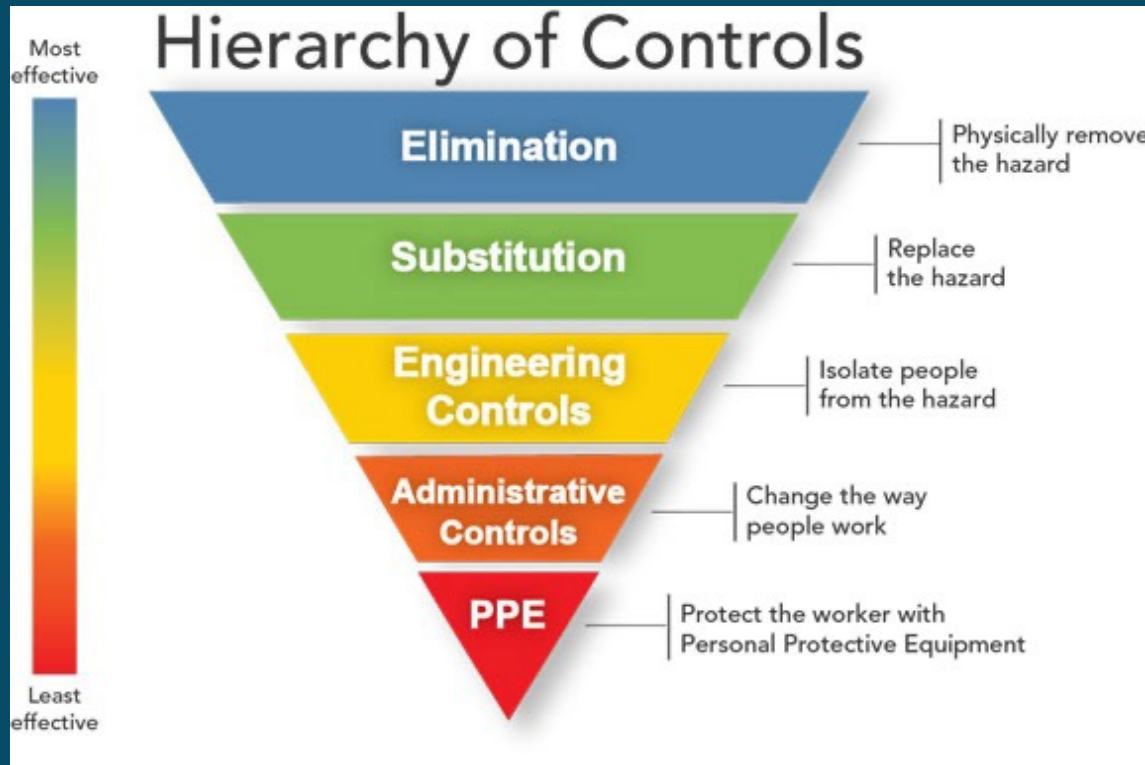


Irwin/Kossoff, Transition Design Institute, Carnegie Mellon University; adaptation by Tom Dunne

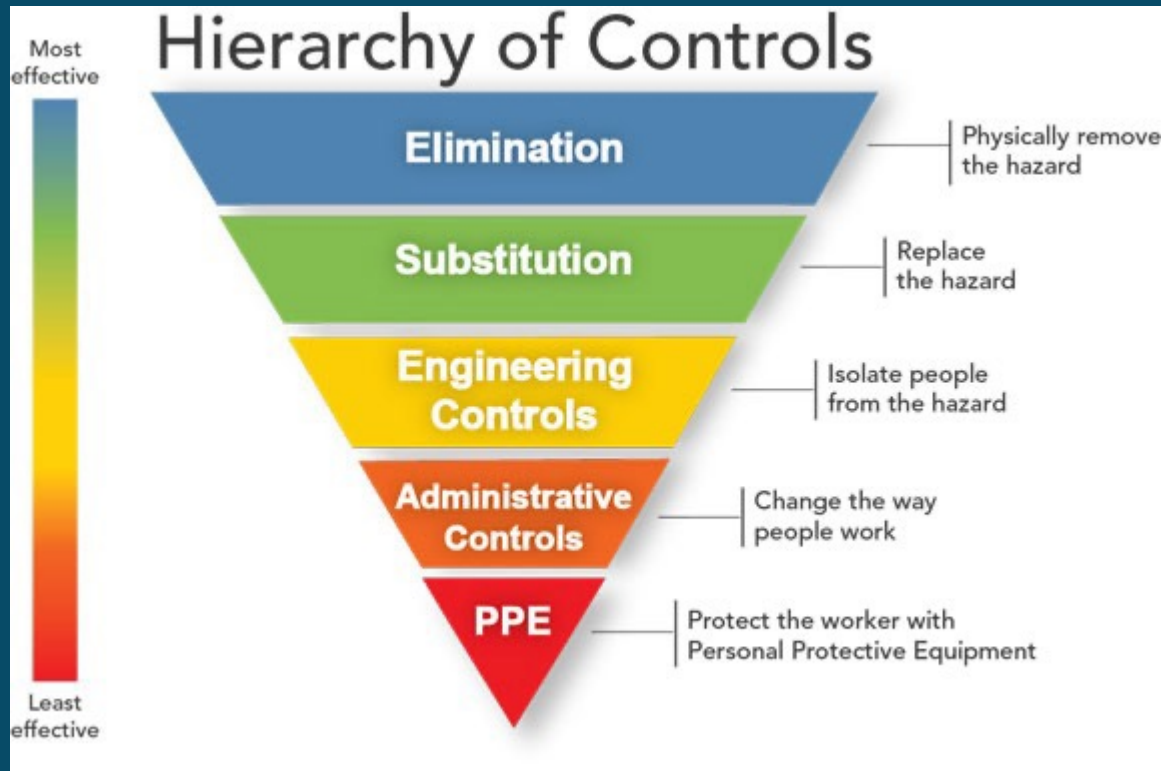
TECHNOLOGICAL DISRUPTION



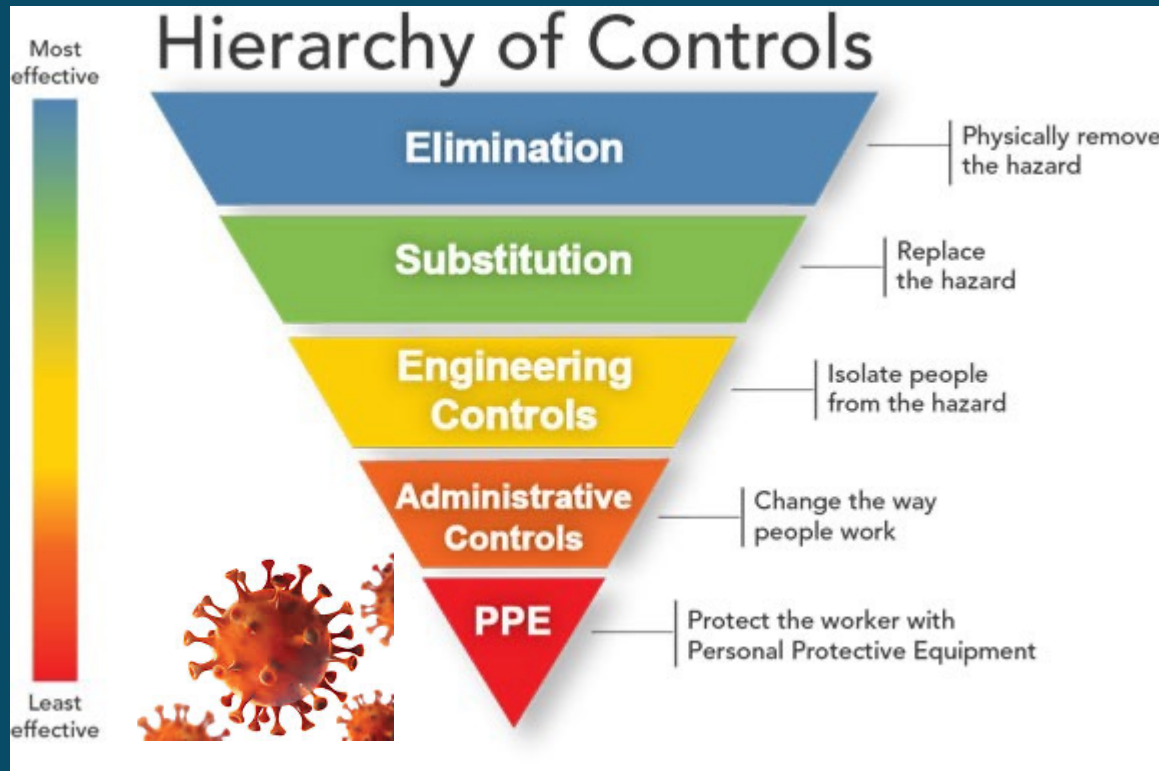
GLOBALIZATION



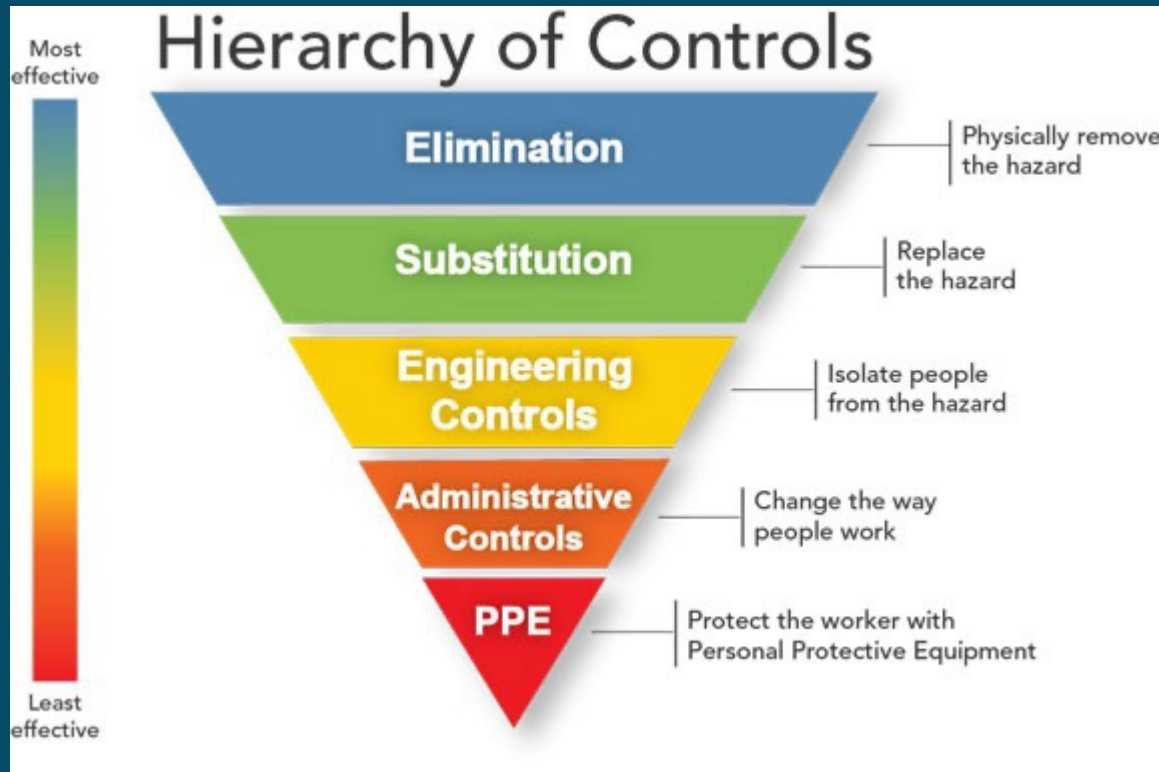
CHANGING DEMOGRAPHICS



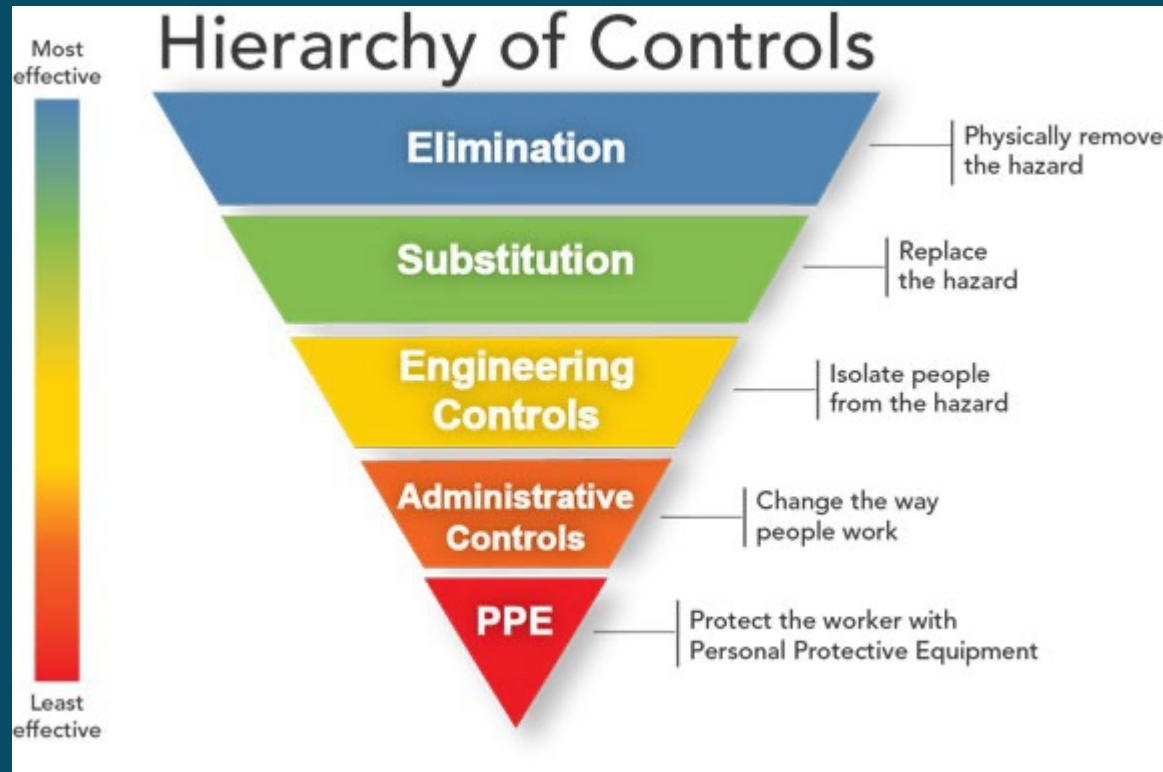
PANDEMICS and EMERGENCIES OF THE FUTURE



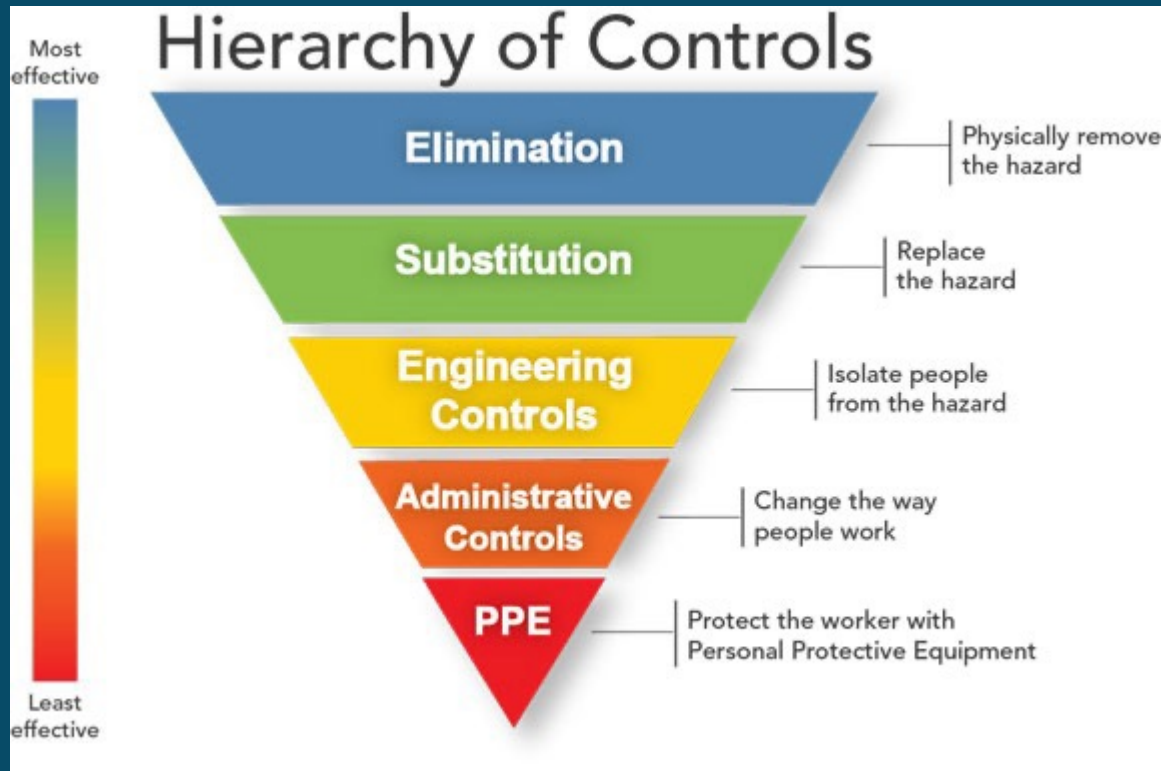
IGNORANCE AND DISINFORMATION



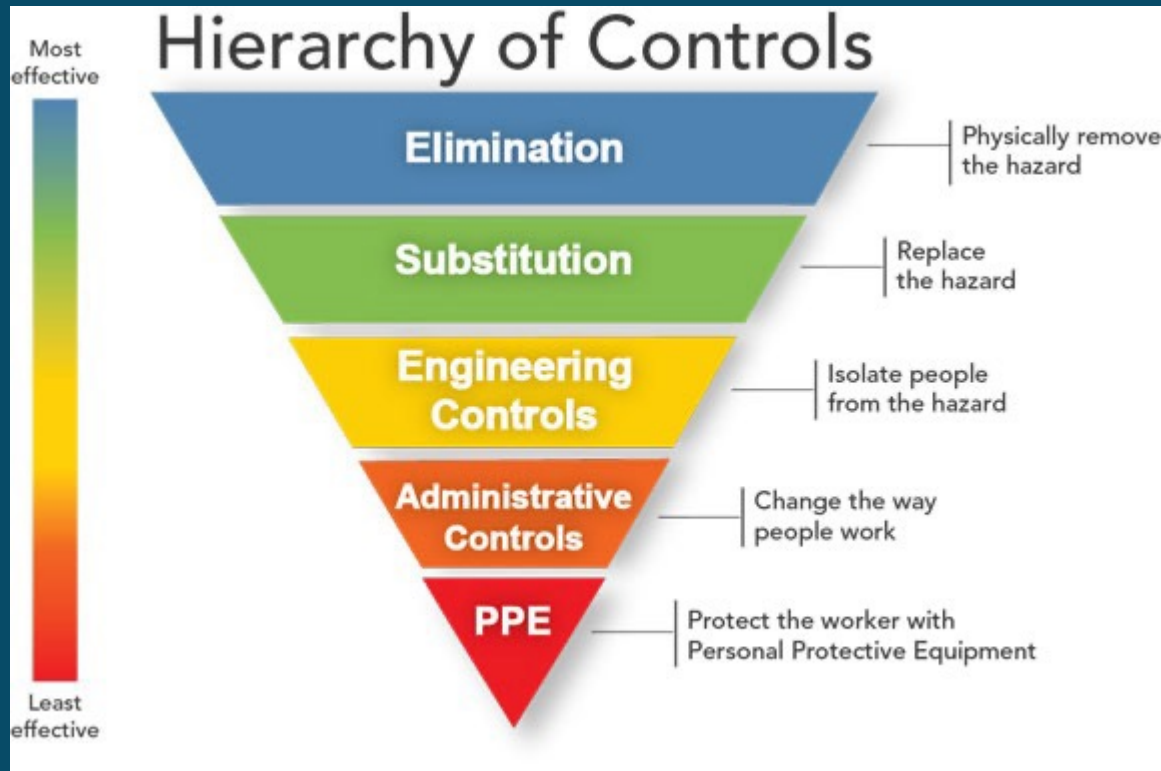
HEALTH AND SAFETY INEQUITY



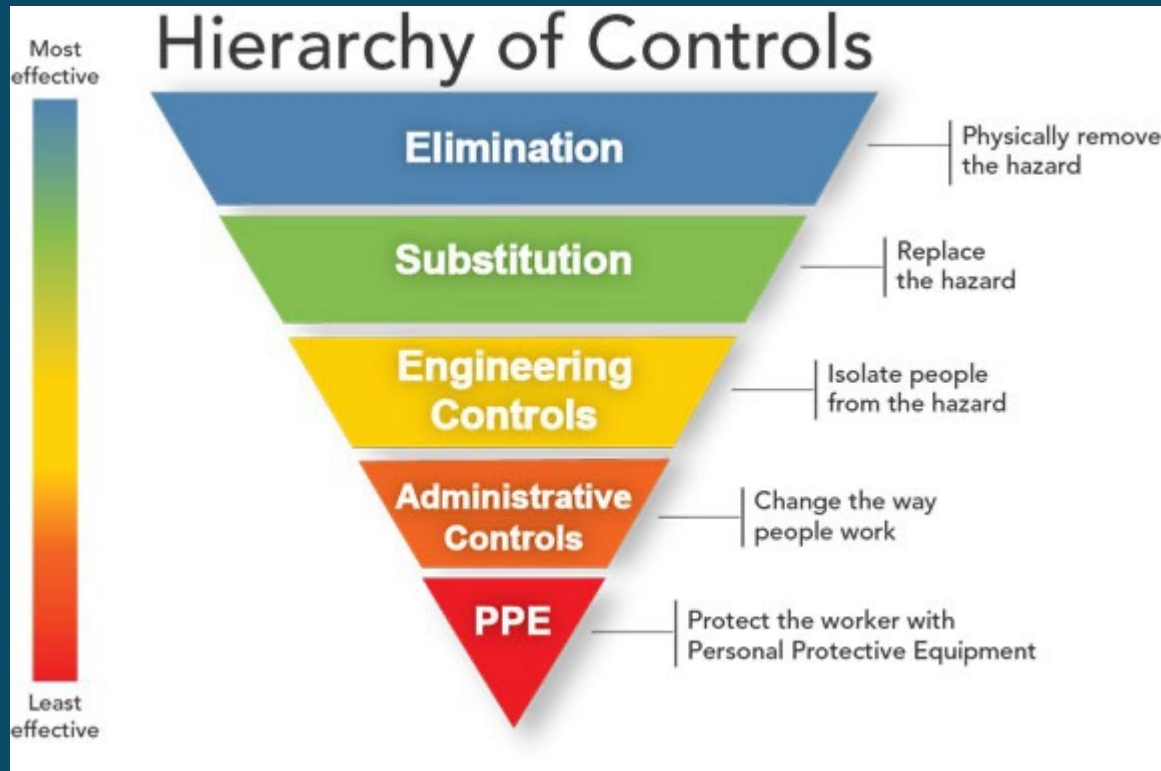
ECONOMICS and the OBSESSION with PRODUCTIVITY



BODILY AUTONOMY



CLIMATE CHANGE



Greenhouse gas emissions

The Lancet DOI: (10.1016/S0140-6736(18)32594-7)

Climate change

Ocean acidification

Raised average and extreme temperatures

Altered rainfall patterns

Sea-level rise

Extreme weather

Other air pollutants (eg, particulates)

Reduced fishery and aquaculture productivity

Reduced physical work capacity

Flood

Heatwaves

Drought

Fire

Social mediating factors

Loss of habitation

Poverty

Mass migration

Violent conflict

Other social determinants of health

Reduced agricultural productivity

Biodiversity loss, ecosystem collapse, pests

Ozone increase

Particulate pollution

Pollen allergenicity burden

Bacterial diarrhoea

Undernutrition

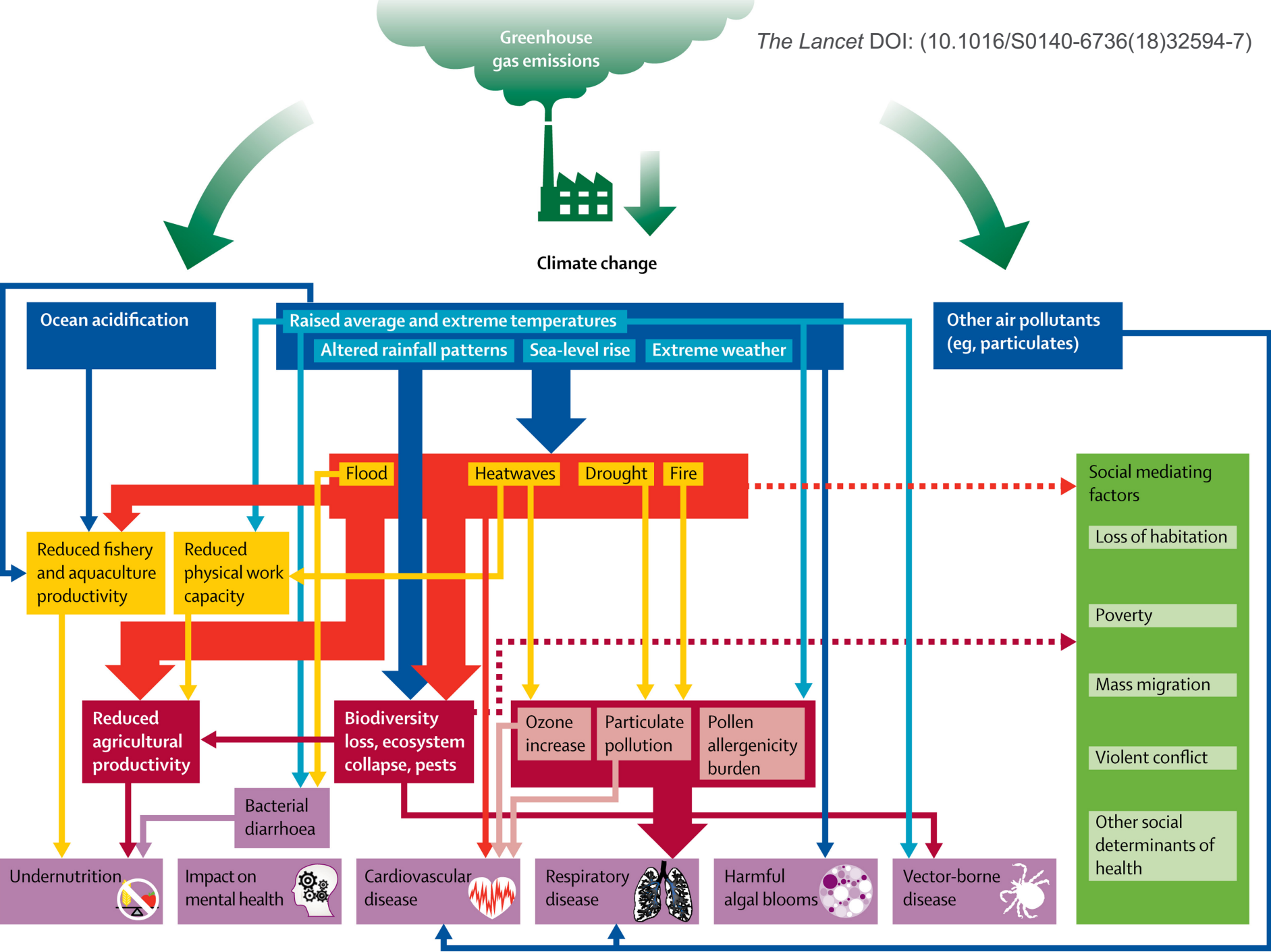
Impact on mental health

Cardiovascular disease

Respiratory disease

Harmful algal blooms

Vector-borne disease



INEQUITY AT THE BOILING POINT

*Heat, Smoke and Covid Are Battering the
Workers Who Feed America*

Climate Change Hazards for Workers



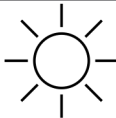
Increasing temperature



Water quality, Drought



Extreme weather events



Ultraviolet radiation



Built environment



Emerging industries & industrial transitions



Air pollution

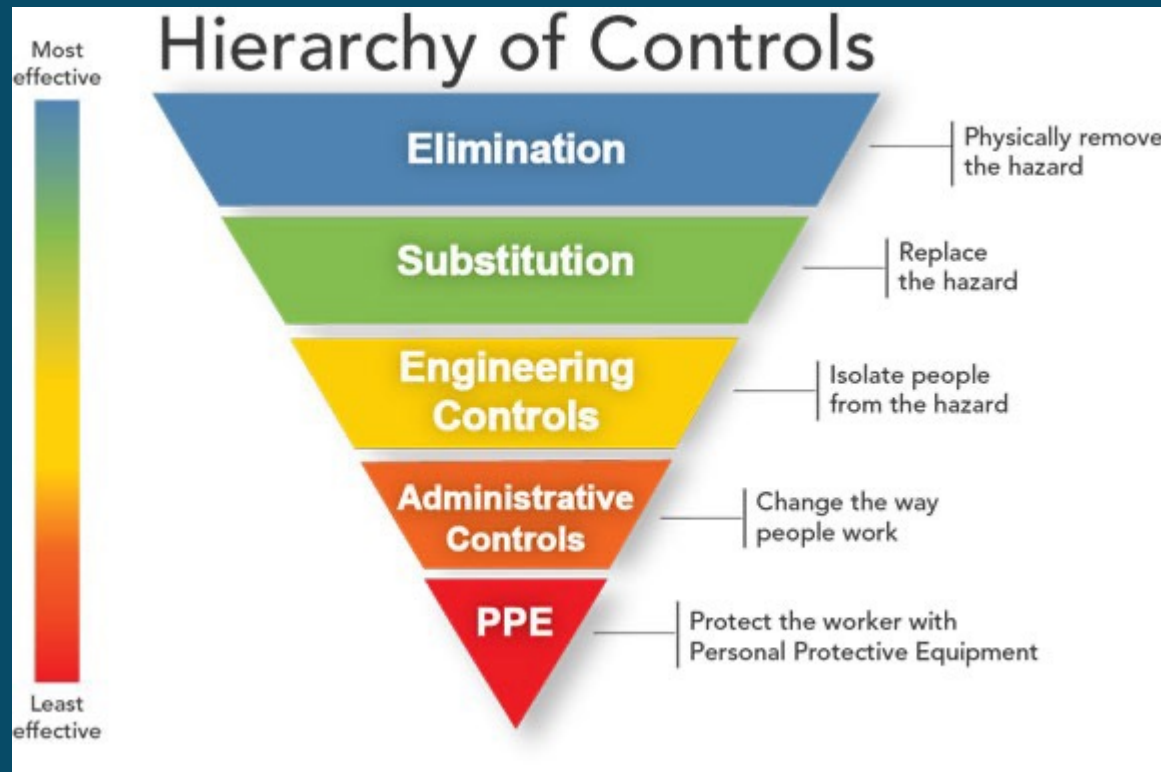


Vector borne diseases & biological hazards

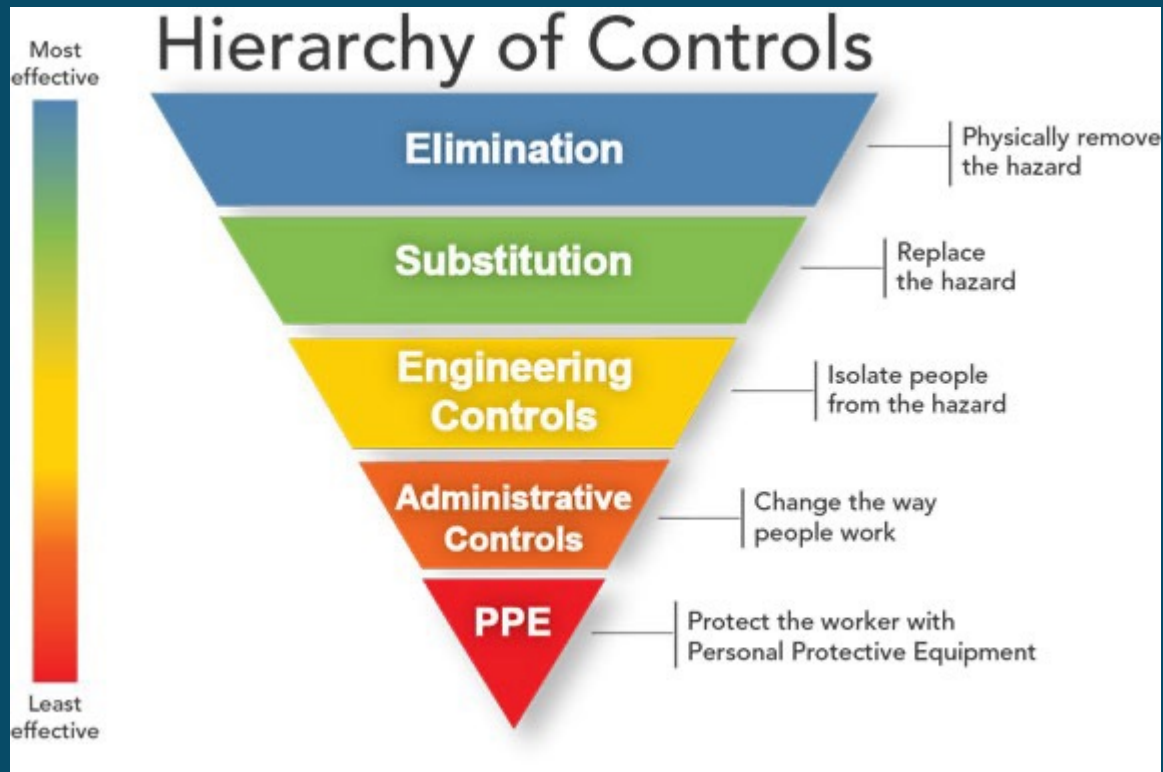


Mental health

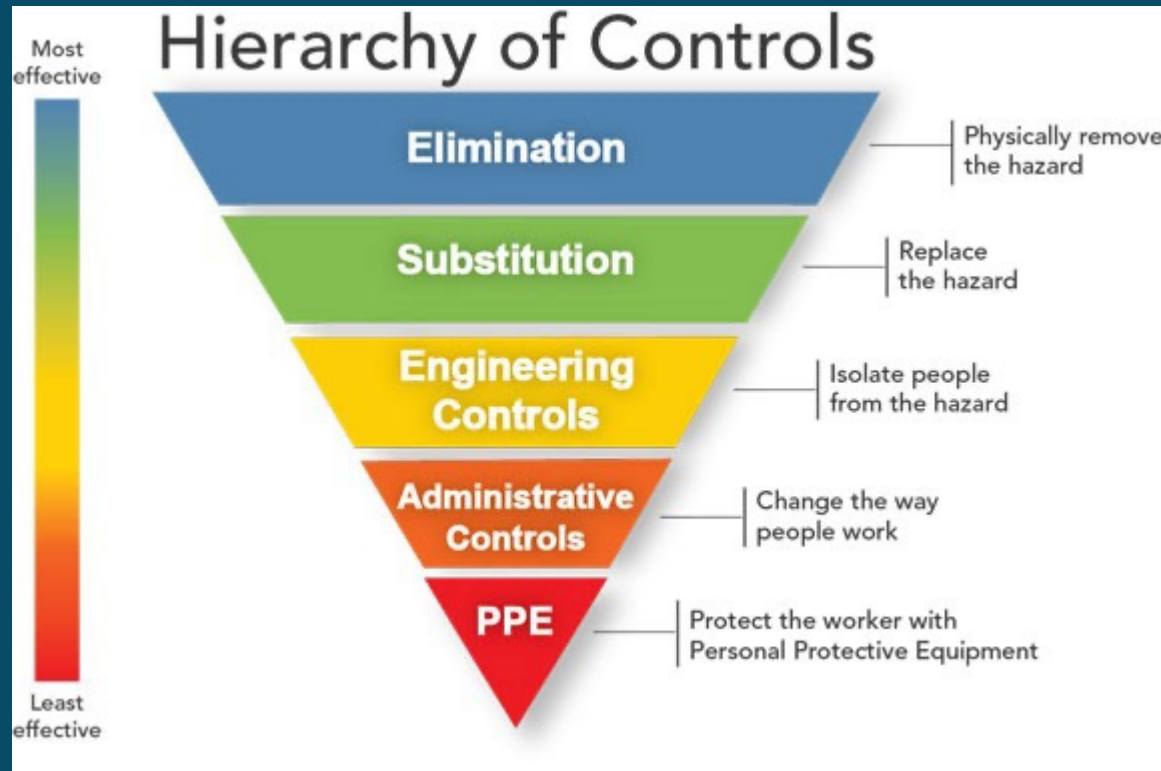
STRUCTURAL AND SYSTEMIC RACISM



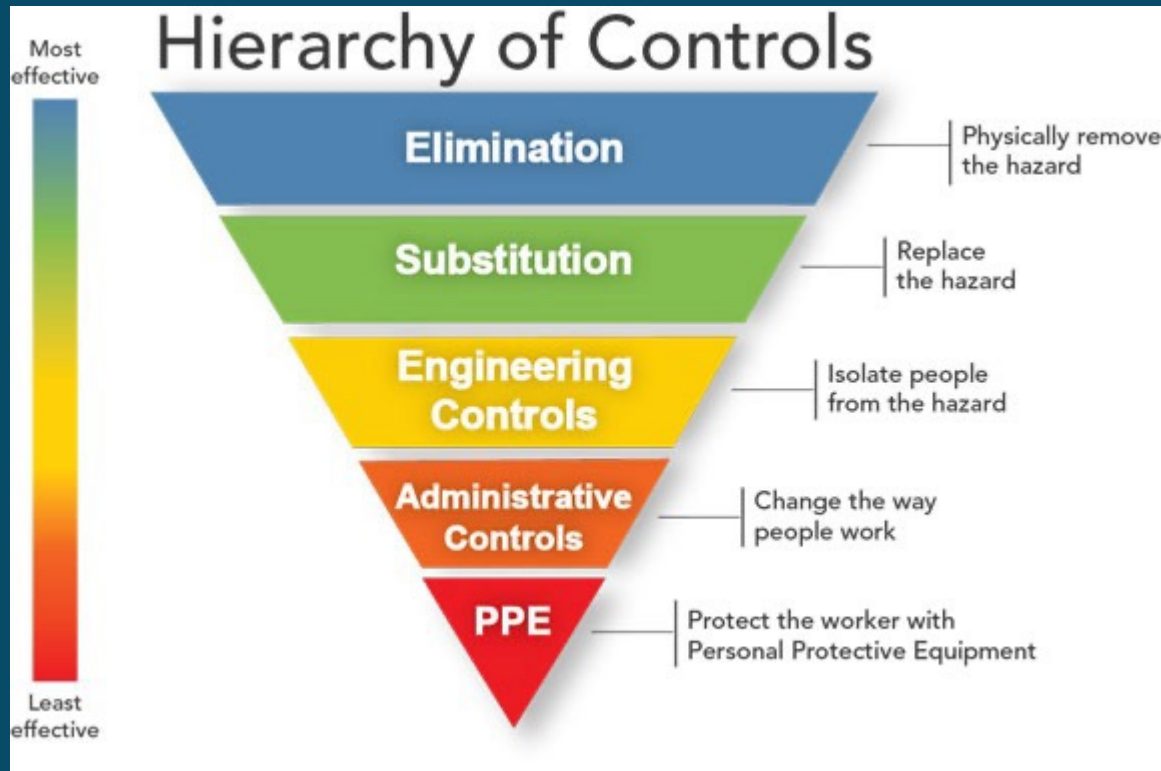
VIOLENCE



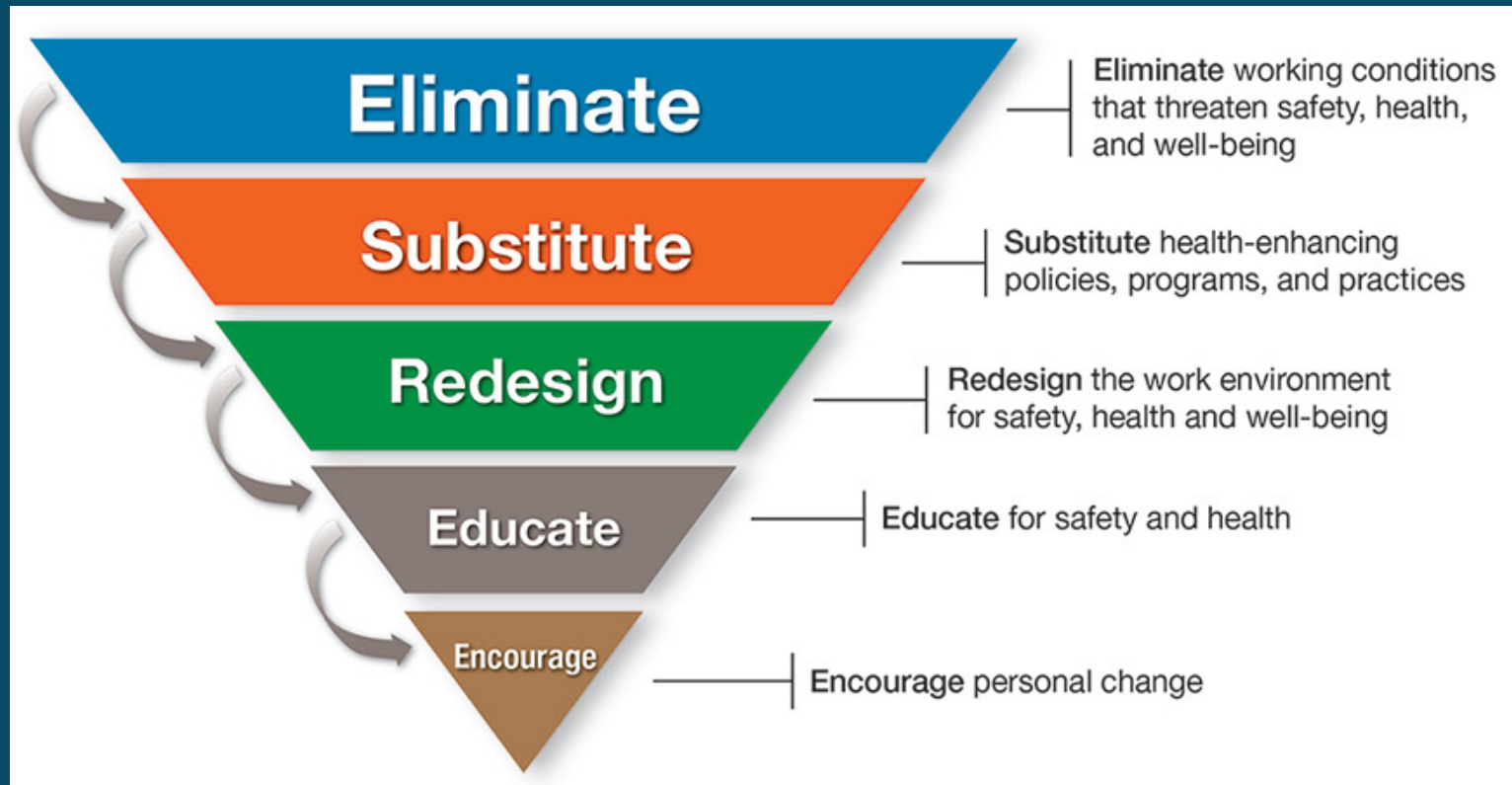
ENVIRONMENTAL DEGRADATION



EROSION OF FUNDAMENTAL HUMAN RIGHTS



ORGANIZATIONAL BEHAVIOR



ESG

Environmental

- Waste and pollution
- Resource depletion
- Greenhouse gas emission
- Deforestation
- Climate change

Social

- Employee relations and diversity
- Working conditions
- Local communities
- Health and safety
- Conflict

Governance

- Tax strategy
- Executive remuneration
- Donations and political lobbying
- Corruption and bribery
- Board diversity and structure

WHAT COMPETENCIES WILL FUTURE OSH PROFESSIONALS NEED?

THE TRULY HARD
STUFF:

SYSTEMS THINKING

EMOTIONAL INTELLIGENCE

COLLABORATION -
TRANSDISCIPLINARY

EMPATHY – COMMUNICATION -
ADVOCACY



Review

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OPEN

Education and Training to Build Capacity in Total Worker Health[®]

Proposed Competencies for an Emerging Field

Lee S. Newman, MD, MA, Joshua G. Scott, PhD, Adele Childress, PhD, MSPH, Laura Linnan, ScD, Wilbert J. Newhall, PhD, Deborah L. McLellan, PhD, Shelly Campo, PhD, Sabrina Freewynn, MPH, Leslie B. Hammer, PhD, Maija Leff, MPH, Gretchen Macy, EdD, MPH, Elizabeth H. Maples, PhD, Bonnie Rogers, DrPH, Diane S. Rohlman, PhD, Liliana Tenney, MPH, and Cecilia Watkins, PhD

Newman et al. J. Occup Environ Med (JOEM) 2020 62:e384-391

Six Core Competencies

Subject matter
expertise

Worker
advocacy and
engagement

Program
planning,
Implementation
and Evaluation

Communication
and
Dissemination

Leadership and
Management

Partnership
Building and
Coordination

1. Subject Matter Expertise

“Public health knowledge and skills are a foundational part of OSH as they are for TWH”

Technical and public health knowledge

- occupational safety and health, health promotion, organization of work, business, and health services

Risk/Needs assessment, analysis and decision making

Surveillance and research methods and analysis

Reading, interpretation, and practical application of research studies

Applied public health practices, approaches and interventions

2. Advocacy and Engagement

“The TWH professional is an advocate for protecting the worker, advocating for worker safety, health, and well-being first and foremost”



3. Program Planning, Implementation, and Resources Planning

“There’s a particular need to have expertise in design, implementation, and evaluation of programs and policies built on existing science and best practices.”

Public health
programs and
resources planning

Implement effective
processes,
practices/policy
guidelines

Evaluation plan,
methods, and
resources

4. Communication and Dissemination

“Ability to convey (information) to diverse groups...and to articulate the business case”



Health, safety, and
well-being literacy and
behaviors



Health communication
strategies and
teamwork



Evaluation of
communication and
marketing efforts

5. Leadership and Management

“...including helping organization leaders recognize their role in primary prevention and elimination of psychosocial and physical workplace hazards”

- ❖ Health systems and healthcare navigation
- ❖ Strategic planning and leadership
- ❖ Laws, standards, policy, and regulations
- ❖ Multidisciplinary/cross-functional teams

6. Partnership building and coordination

*“...the ability to bring together the right mix of people and resources and to assist in coordinating the efforts of multiple partners...it is a **transdisciplinary** field”*

Participatory,
collaborative,
transdisciplinary,
cross-functional teams
and partnerships

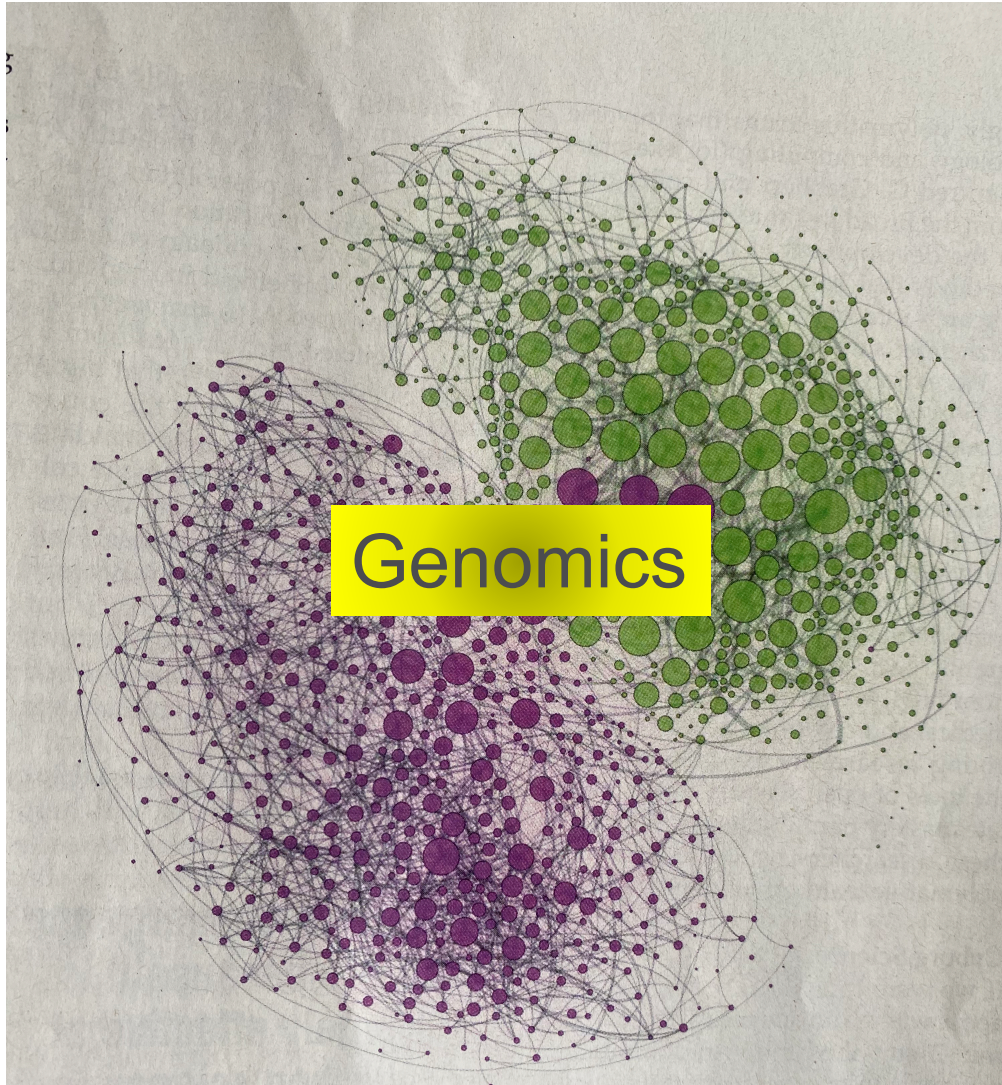
Resource
identification, work-
place design, and
organizational culture

Transdisciplinary,
interdisciplinary, and
integrated
interventions and
programs

Solution design
Combining worksite
safety, health
promotion, and
worksite

wellness concepts

Measurement and
evaluation tools



Courtesy of Alexander Petersen & Ioannis Pavlidis

This graphic representation of multidisciplinary convergence depicts the research collaboration network of about 1,000 scholars sampled from U.S. computer science departments (*magenta*) and biology departments (*green*) in 2015. Links represent collaborations, and node size is proportional to a scholar's centrality within this network. The cross-disciplinary bridge formed by computing scholars extending into the biology domain represents the genomics nexus, where computer scientists and their surrounding biology collaborators are forming a new convergent culture.

Lesson in convergence

Computer Sciences X Biological Sciences

Adept at systems thinking

Ready to embrace challenges, learn new things, and have fun

Action-oriented - not afraid to make mistakes

Sensitive to power differentials, and dynamics



Recognizes that they are a stakeholder too

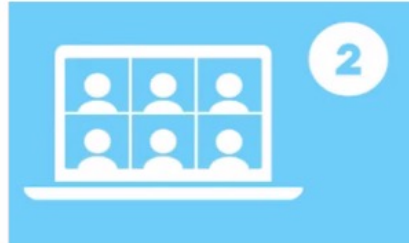
Stamina for long-term engagement, celebrating small wins

Collaborates effectively with stakeholders from diverse backgrounds

Eight Trends for the Future of Work



Lean Work Teams



New Leadership Styles



Reduced Footprints



Higher Transparency



Safety at Core



Whole Human Approach



Tech as a Mandate



Greater Partnership

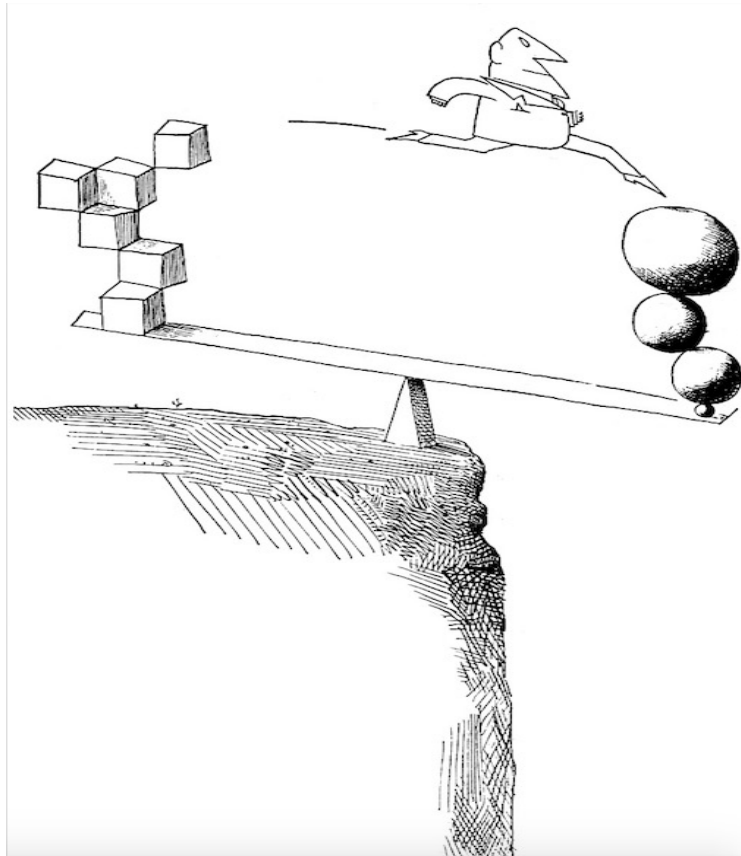
SAFER

Slide courtesy John Dony - NSC



John Dony (he/him/his)

Thank you



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& PLAINS ERC**

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