

Planning for the changing burden of occupational exposures in the Pacific Northwest

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NWCOHS



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ENVIRONMENTAL
& OCCUPATIONAL
HEALTH SCIENCES

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Questions as old as the field itself...



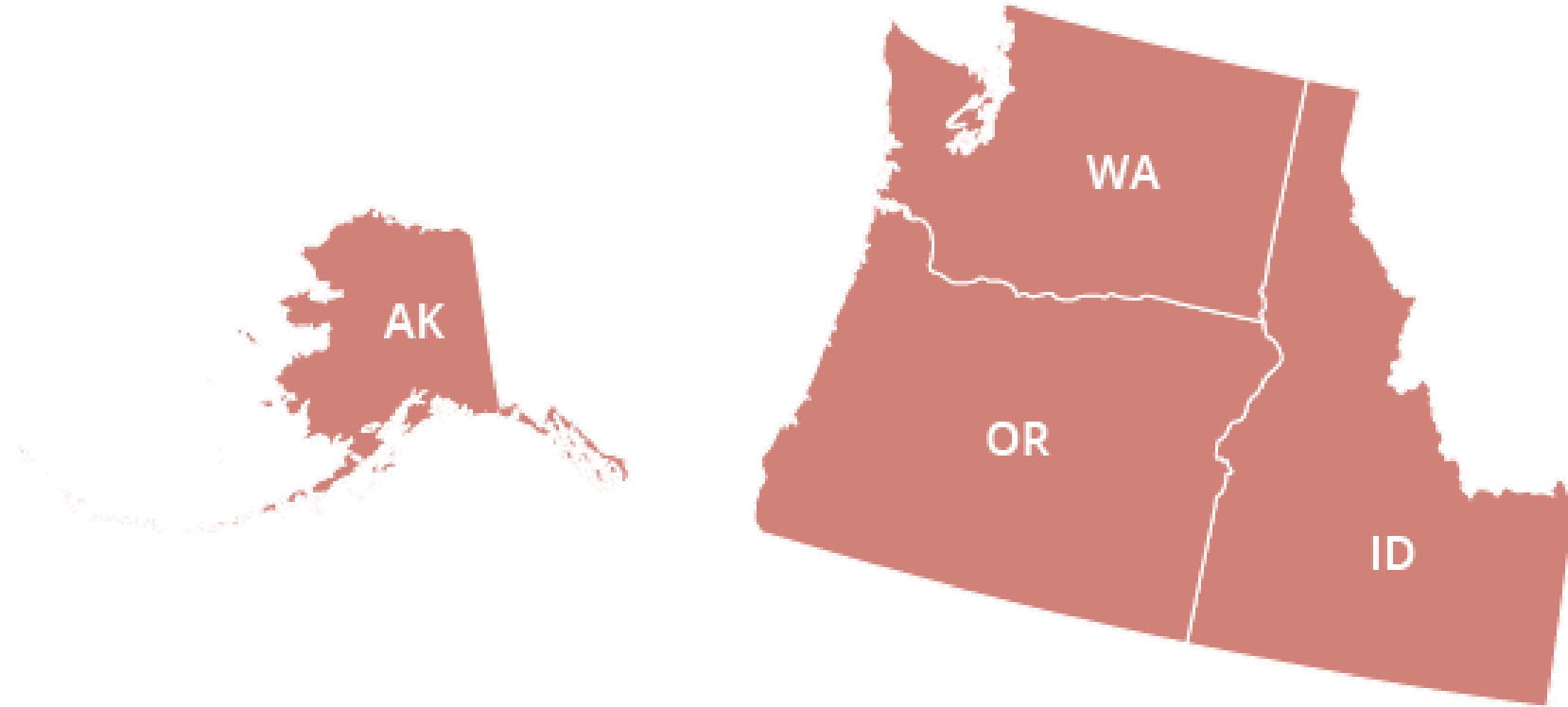
How many people are exposed to contaminants at work?

What are people exposed to?

Is this changing over time?



Exposure surveillance in Federal Region X



EXPOSURE → INJURY or ILLNESS

Project Goal:

Estimate the number of workers exposed to a subset of chemical, physical, psychosocial, and safety hazards in Federal Region X to inform research, training, and prevention priorities for the region.

Like all surveillance projects, we need data!

The data says we need more data.



someee cards
user card

- State Employment Data by SOC (2014 and 2024)
- CANJEM
- O*NET

CANJEM: Canadian Job Exposure Matrix

CANJEM

OCCUPATIONAL EXPOSURE INFORMATION SYSTEM

OVERVIEW

USER GUIDE

CANJEM DEVELOPMENT

RESEARCH GROUP

SELECT SUBSTANCE FROM LIST ↘

ABRASIVES DUST

CANJEM

SUBSTANCE LIST

Inorganic substances

Inorganic dusts

Abrasives dust

Abrasives dust

Cristalline silica

Alumi

Silicon carbide

Inorganic insulation dust

Inorganic insulation dust

- Probability, frequency and intensity of exposure for nearly 300 chemical risk factors (by occupation, time period)

In the current CANJEM database, 1365 jobs are exposed at low concentration, 1220 at medium, and 311 at high, for a total of 9.1 percent exposed.

JEM based on occupation (4-digit CCDO 1971)

The matrix based on occupation contains 361 cells, covering 98 percent of the CANJEM population. 176 cells have a non null probability of exposure, with 71 lower than 5% and 105 greater than 5%. The median and range of probability values among cells with >5% probability is 20% [5.1-96].

O*NET: BLS tool for job seekers/researchers



O*NET OnLine

Occupation Quick Search:

[Help](#)

[Find Occupations](#)

[Advanced Search](#)

[Crosswalks](#)

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**Build your future
with O*NET OnLine.**

- Prevalence of several physical, safety, and psychosocial exposures by occupation

[What is O*NET?](#)

What's New?

Discover your interests while using O*NET OnLine

Start the career you've dreamed about, or find one you never imagined.

[Find It Now](#)

at My Next Move



Occupation Search

[Keyword](#) or [O*NET-SOC Code](#):



Find Occupations

[Browse](#) groups of similar occupations to explore careers. Choose from industry, field of work, science area, and more.



Advanced Search

[Focus](#) on occupations that use a specific tool or software. Explore occupations that need your skills.



Crosswalks

[Connect](#) to a wealth of O*NET data. Enter a code or title from another classification to find the related O*NET-SOC occupation.

ATTN: VETERANS

Put your military skills and experience to work in civilian life. Learn how at:

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Hot Technologies are

O*NET: BLS tool for job seekers/researchers



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Browse by O*NET Data

Work Context — Spend Time Bending or Twisting the Body [Save Table \(XLS/CSV\)](#)

How much does this job require bending or twisting your body?



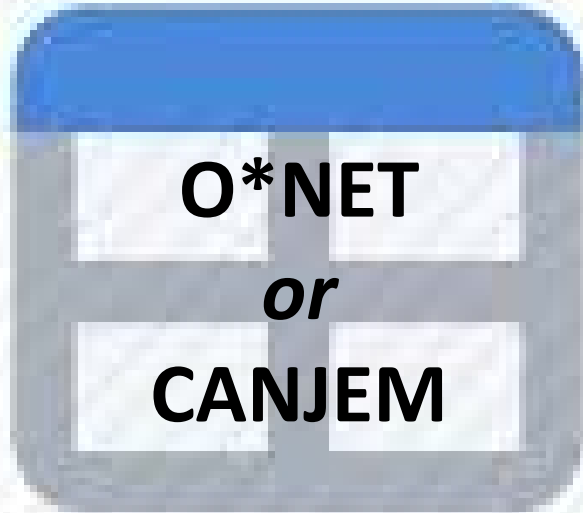
Sort by:	Context ▲	Code	Occupation
92		37-2012.00	Maids and Housekeeping Cleaners Bright Outlook
92		49-9095.00	Manufactured Building and Mobile Home Installers
90		49-9045.00	Refractory Materials Repairers, Except Brickmasons
90		47-5061.00	Roof Bolters, Mining
89		51-9197.00	Tire Builders
87		51-9122.00	Painters, Transportation Equipment
84		31-1015.00	Orderlies
83		53-7041.00	Hoist and Winch Operators
82		27-2032.00	Choreographers
80		29-2021.00	Dental Hygienists
80		51-6042.00	Shoe Machine Operators and Tenders

Jobs where exposure occurs frequently



Jobs where exposure occurs less frequently

Which SOC
are exposed?

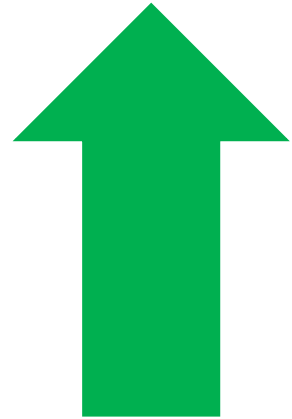


How many
people are
employed in
each SOC?

MERGE



Employment changes in the region (2014 to 2024)



1

Computer & Math



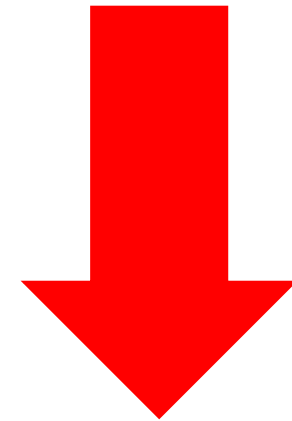
2

Construction & Extraction



3

Healthcare



1

Architecture & Engineering



2

Production



3

Farming, fishing, forestry

Most common chemical exposures

1



Cleaning agents
(11.3% of workforce)

2



Organic solvents
(9.0% workforce)

3



Engine emissions
(8.4% of workforce)

4



Aliphatic aldehydes
(7.8% of workforce)

5



Biocides
(6.9% of workforce)

Most common O*NET exposures

1. Ergonomic Hazards

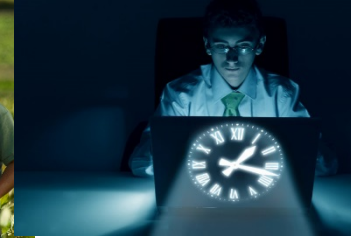


Make repetitive motions more than half the time (14%)

Stand more than half the time (37%)

Sit more than half the time (29%)

2. Psychosocial Hazards



Irregular or seasonal work schedule (20%)

Atypical work hours (42%)

Under time pressure (40%)

Most common O*NET exposures

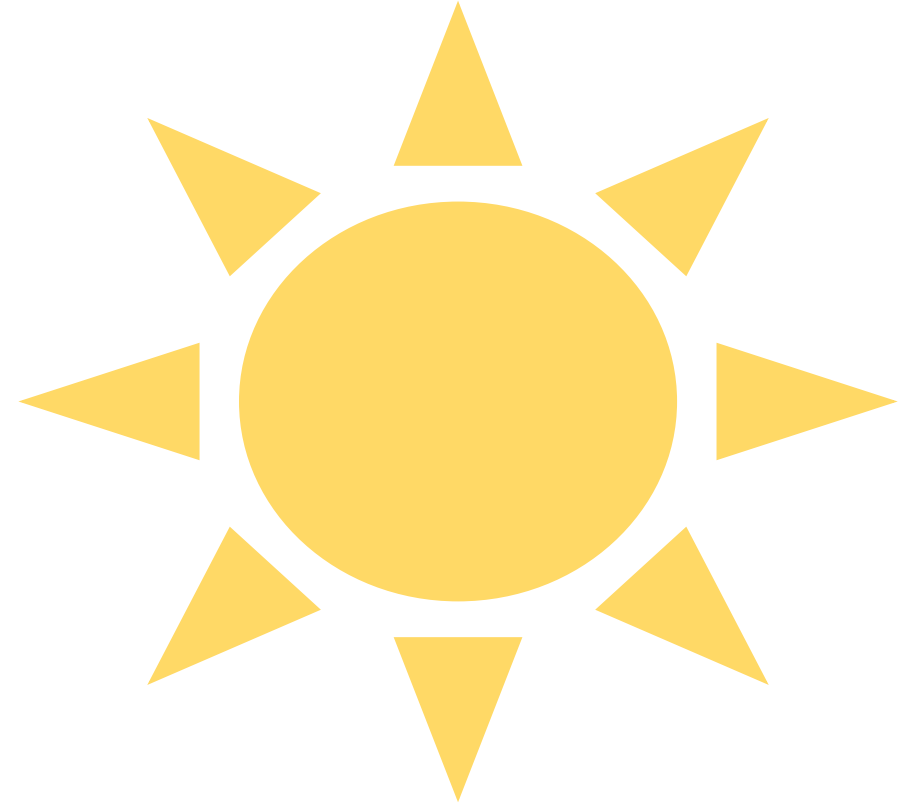
3. Physical Hazards



Sounds are an uncomfortable level more than half the time (14%)

Work outdoors exposed to weather (13%)

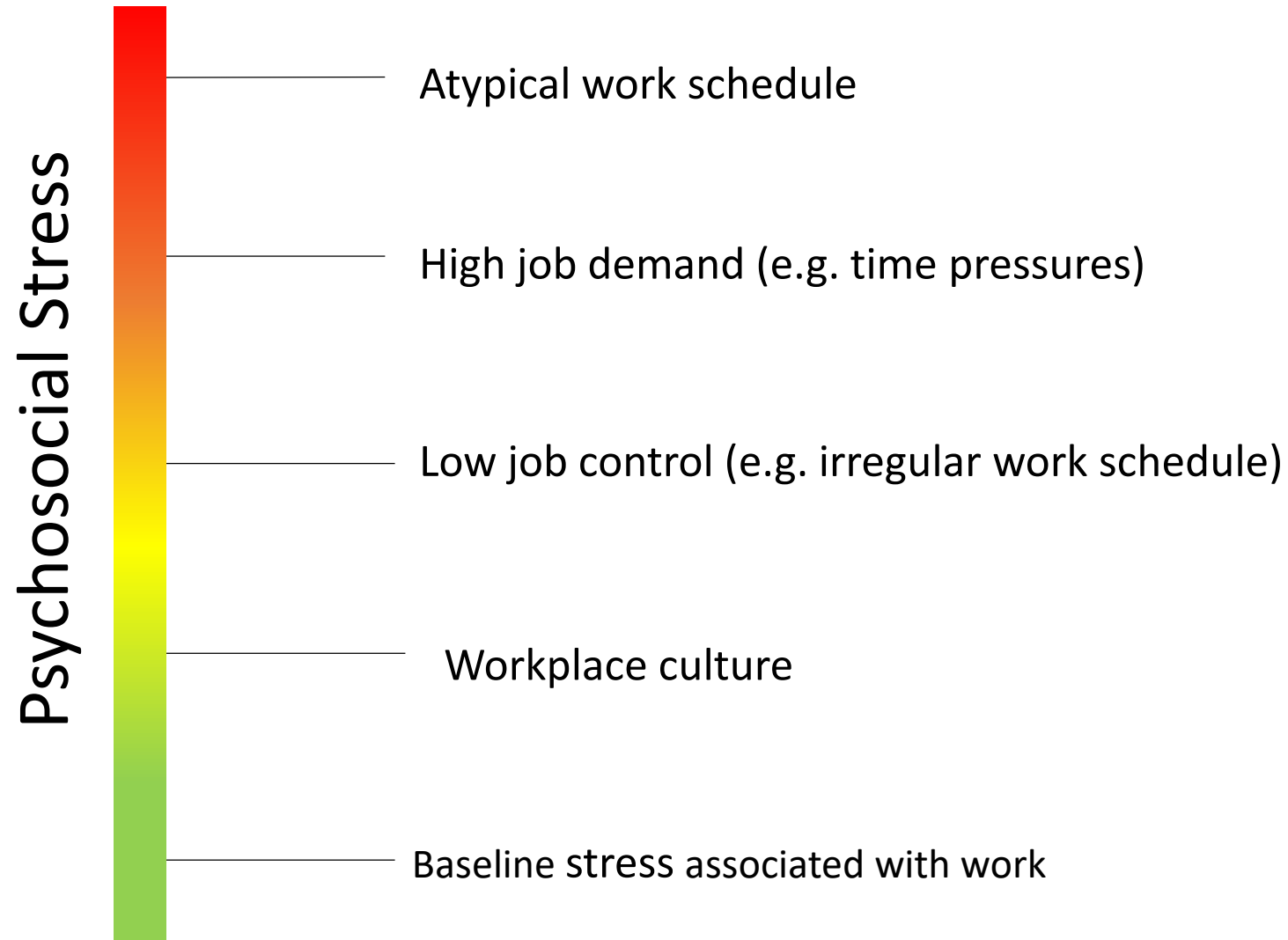
Exposed to very hot or very cold temperatures (11%)



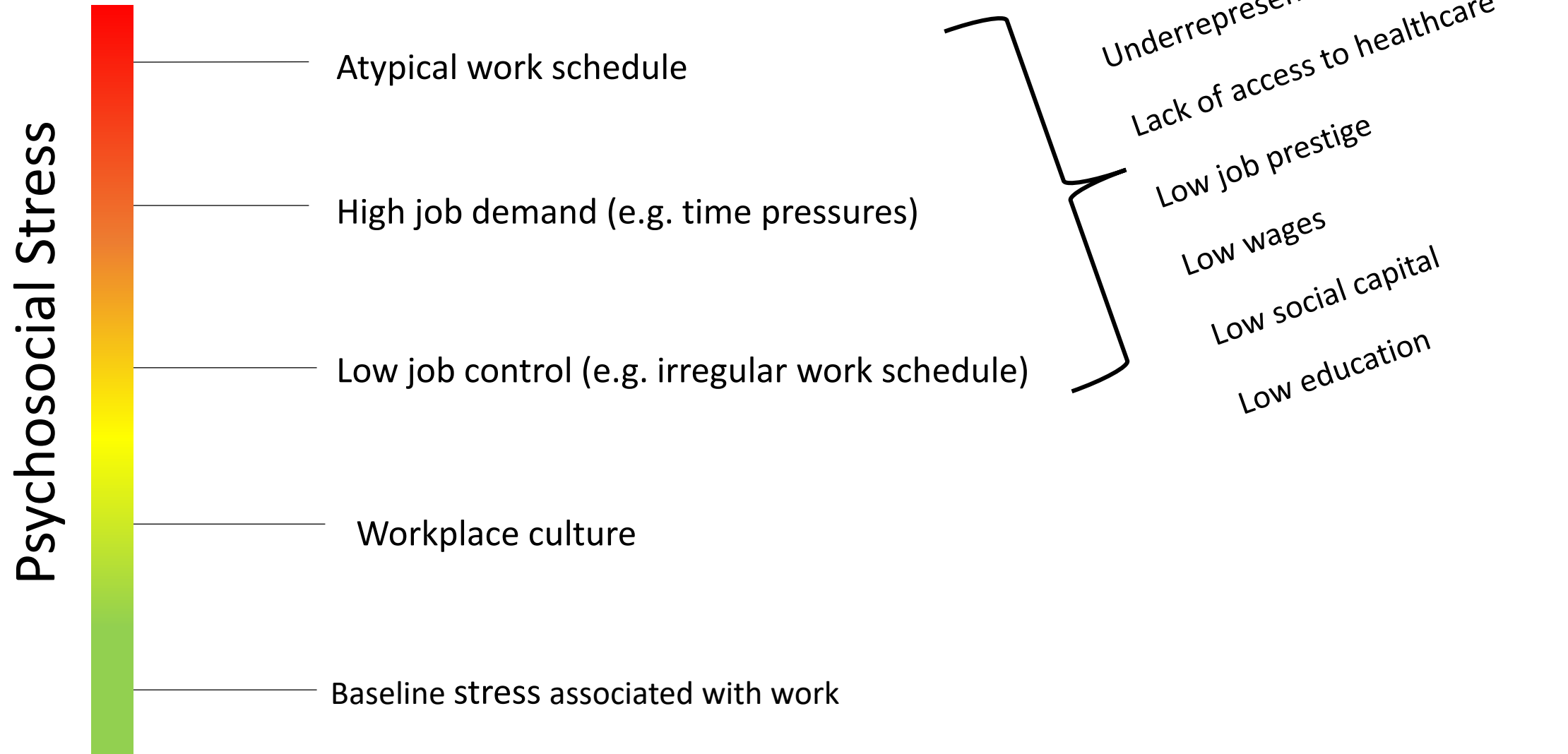
Psychosocial exposures



Occupational health disparities



Occupational health disparities



How can this inform our ERC?

TRAINING PROGRAMS



Traditional hazards and their outcomes



Research, Clinical, and Leadership Skills



History and compliance

How can this inform our ERC?

TRAINING PROGRAMS



Traditional Hazards and their outcomes



Employment arrangements, worker well-being



Research, Clinical, and Leadership Skills



Climate change, occupational health disparities

How can this inform our ERC?

Research

- Pilot project priorities

Outreach

- Industries to target?
- Differences by states
- New topics

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