

Addressing the Leaking Pipeline

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HEAL Pain Strategic Planning - Research Workforce and Training Subcommittee

Training and Career Development Outcome Data

Training and Career Development Outcome Data for Early-Career Pain Clinician-Scientists

frontiers | Frontiers in Pain Research

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Challenges and opportunities for research clinicians interested in pain: results of a survey

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Commentary

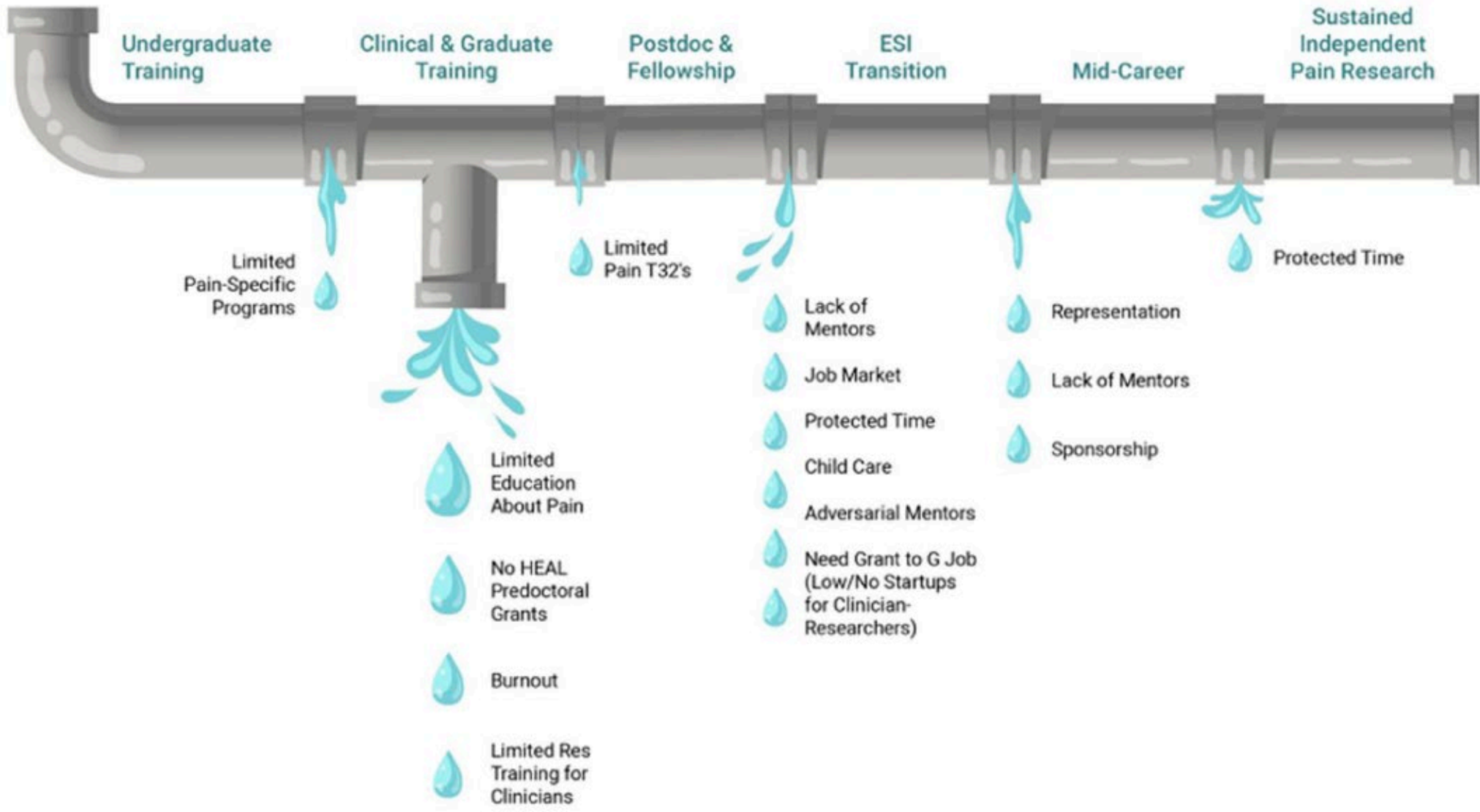
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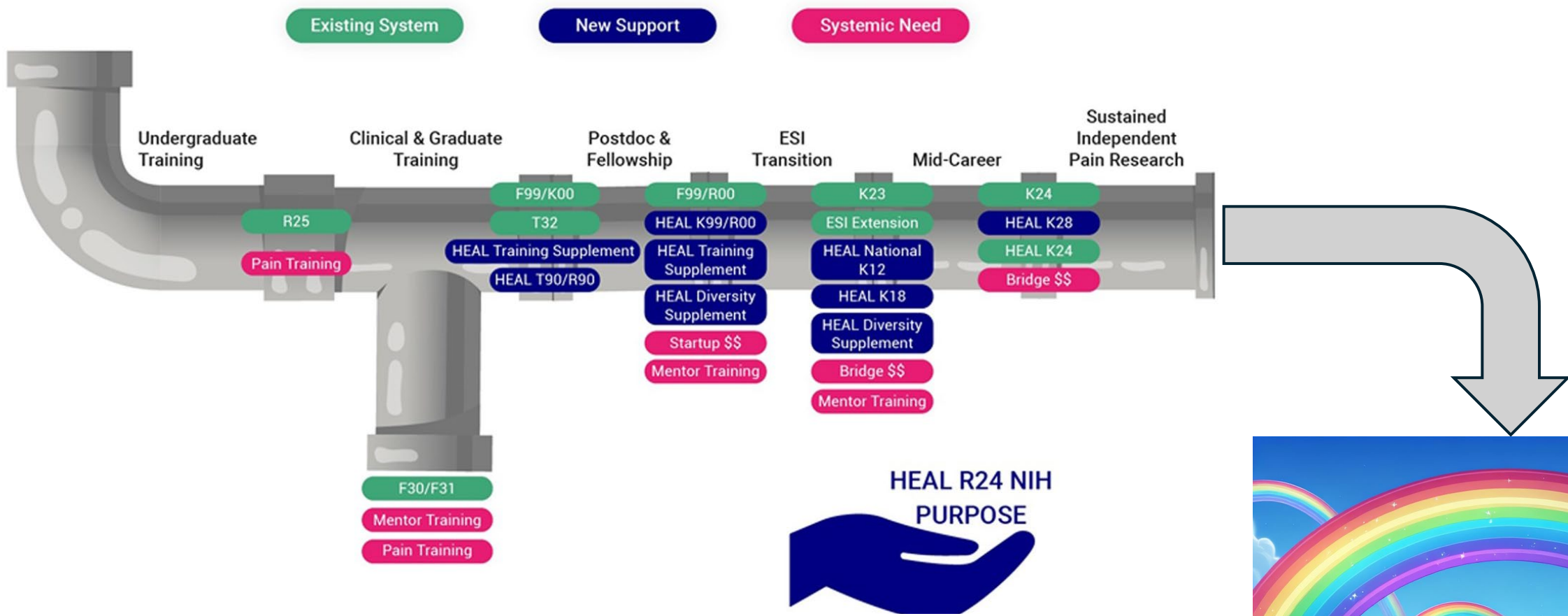
COMMENTARY

Challenges and opportunities for growing and retaining a pain research workforce

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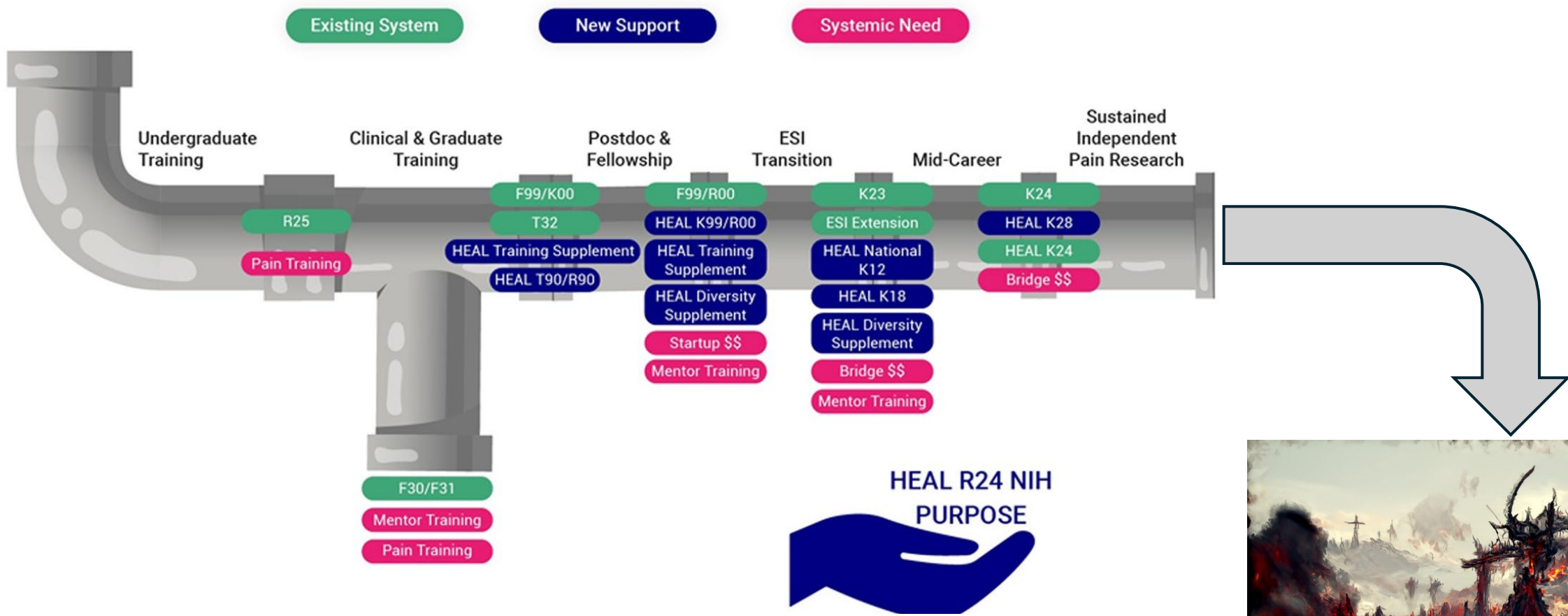
The Leaky Pipeline for Clinical Pain Research





HEAL R24 NIH
PURPOSE



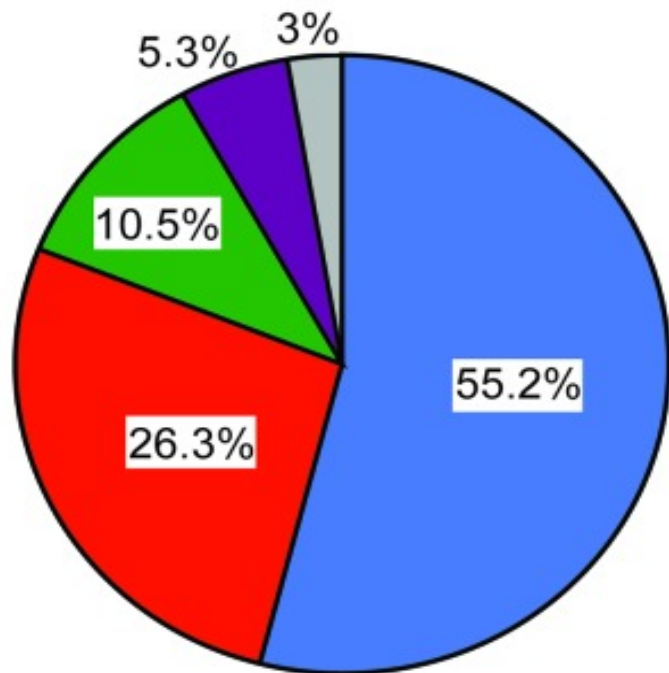


**Is the Pipeline Leaking or Are
People Using Escape Hatches?**

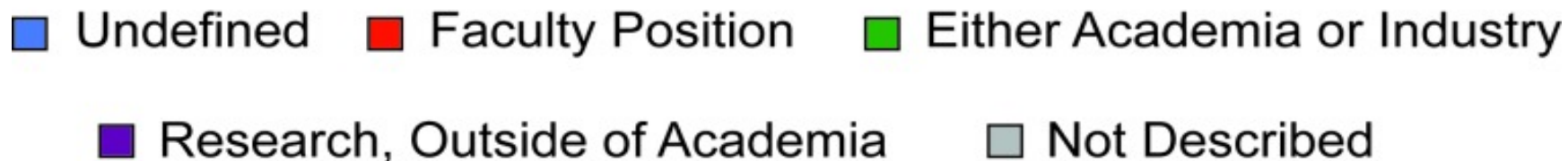
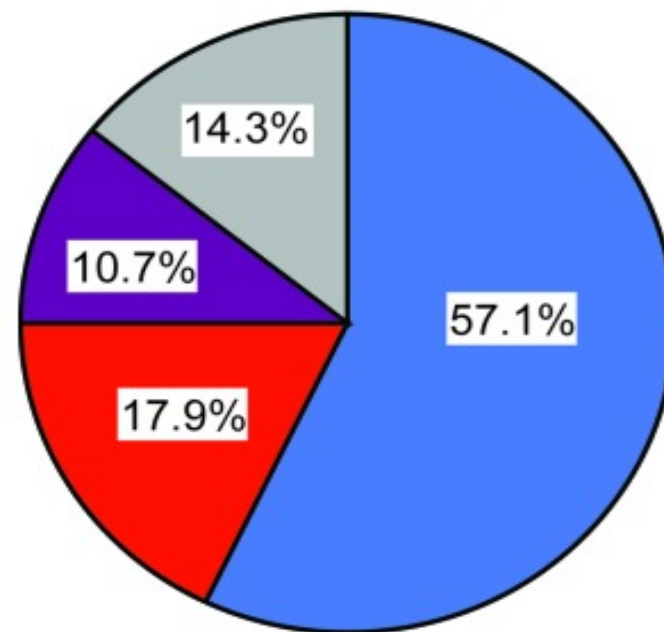


Career Interest Entering

(A) Graduate School
(n=38)




(B) Postdoctoral Training
(n=28)



Problems with the Leaking Pipeline Analogy

- Implies that our desired outcome is the path of least resistance
- Emphasis on the pipeline not the people or other system features
- Downplays agency of the people pursuing a research career
- Has trouble explaining selective leakage

- 
- **People need to know about the route**
 - **Multiple on-ramps and off-ramps**
 - **Roadblocks, detours, alternate routes**
 - **Tour guides can be helpful**
 - **Both journey and destination are important**

Pain Science Parkway



“Features” of Pain Research

Feature
Small (\$, people, footprint)
No institutional home
Challenging topic
Low public awareness
Social stigma

Tremendous public health impact

HEAL


Strong advocates & committed workforce

Ripe for transformative change

Increasing Quantity and Diversity of Traffic on the Pain Science Parkway

- Increase public awareness of chronic pain
- Feeder programs specifically for pain research
- Promote diversity of career options
- Engage people with lived experience (PWLE) of pain
- Adequate funding and compensation for trainees

Challenges to Retaining People in Pain Science

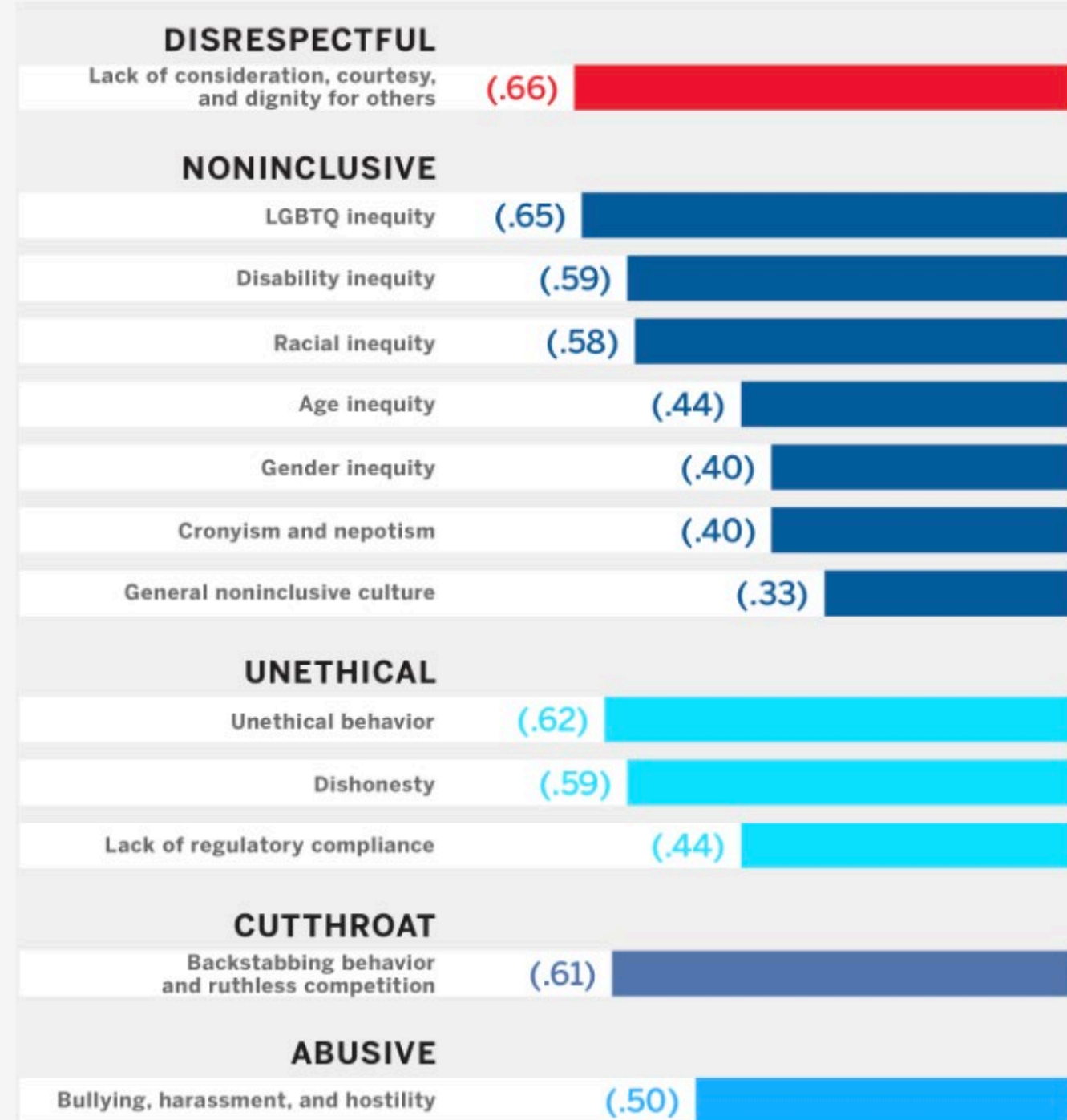
- Funding limitations and instability
 - Protected time for research
 - Inadequate institutional infrastructure
 - Poor quality mentorship
 - Workplace culture and support for well-being
- Particularly for physician-scientists
- 

The Toxic Five: Factors Contributing to a Toxic Work Culture

Toxic Cultures contribute to:

- Burnout & mental health issues
- Physical illness
- Attrition
- Increased costs to employers

Sull, et al. (2022) MIT Sloan Mgmt Review

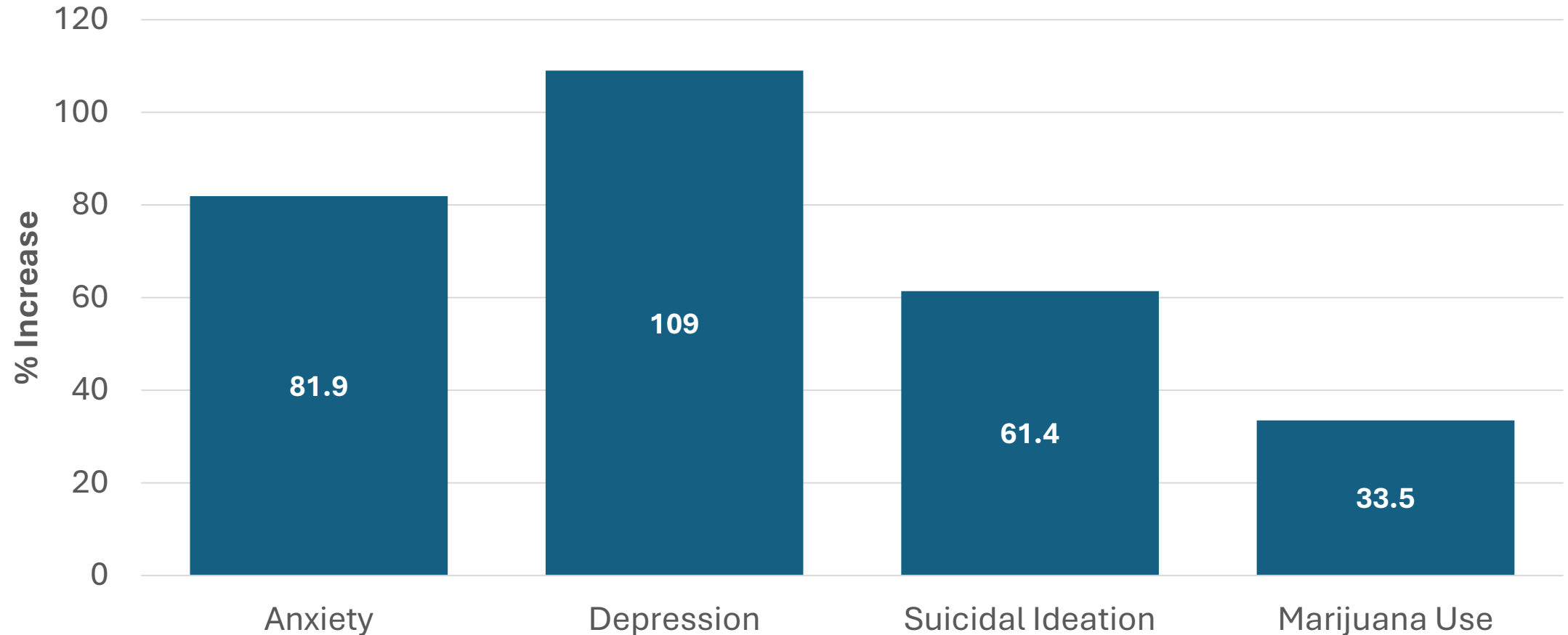


Academic Risk Factors for Toxicity

- Hierarchical and political
- Hidden curriculum
- Inadequate/unstable funding
- Incentive structures
- Competition
- Systemic biases
- Abusive supervision



Increase in Mental Health Concerns in Higher Education Students (2013-2018)



Need to Promote Well-Being

- Well-being strongly linked to academic success
- Low well-being and mental health concerns are highly prevalent in both trainees and faculty
- The scientific environment disproportionately affects the well-being of people from historically excluded communities
- Mentorship plays an important role in promoting well-being among trainees
- Kindness promotes well-being

Factors That Predict Persistence in Science

- Pain Research Training
- Quality Mentorship
- Building Community

Scientific self-efficacy

- I can do what pain scientists do

Scientific identity

- I am a pain scientist

Internalization of scientific values

- I agree with the values of the pain science community

Encouraging People to Travel and Stay on the Pain Science Parkway

- Focus on making the journey and the destination desirable
- Enhance pain science infrastructure
- Engage people with lived experience of pain
- Emphasize attractive features of pain science
- Advance a culture of well-being and support
- Optimize mentorship