

U.S. Department of Health & Human Services



Center for  
Scientific Review

# CSR Update – Including Pain Research

Richard Nakamura, Ph.D.

June 3, 2013

# “To Maintain Our Edge . . . ”



**“we’ve got to protect our rigorous peer review system and ensure that we only fund proposals that promise the biggest bang for taxpayer dollars . . . that’s what’s going to maintain our standards of scientific excellence for years to come.”**

Remarks by the President on the 150th Anniversary of the National Academy of Sciences, April 29, 2013

# CSR: The Portal for NIH Grant Applications

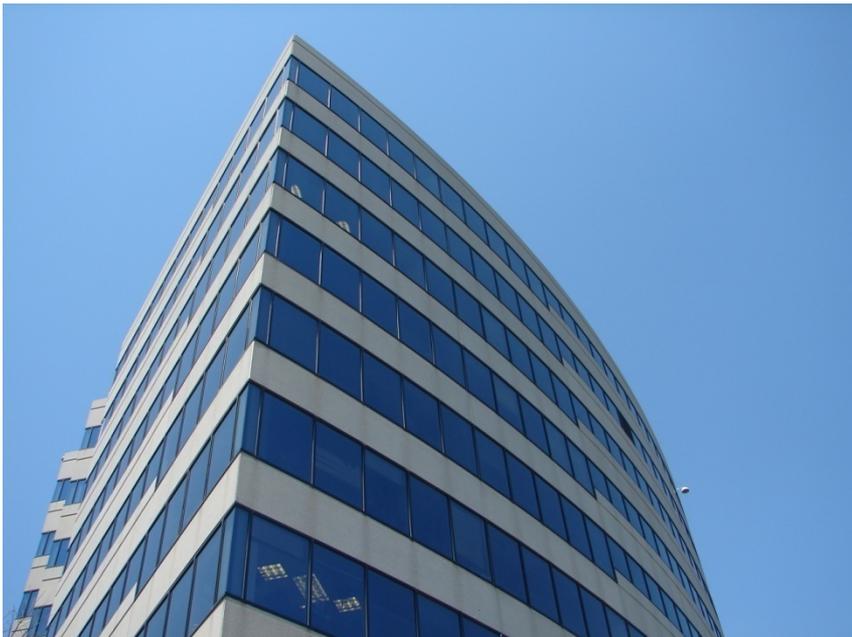
## CSR Mission

*To see that NIH grant applications receive fair, independent, expert, and timely reviews -- free from inappropriate influences -- so NIH can fund the most promising research.*

In 2012, NIH reviewed 1619 application related to pain. Of the 1240 research applications (“R”), CSR reviewed 65%. Major SRGs were Somatosensory and Chemosensory Systems (SCS, >20%), Behavioral Medicine: Interventions and Outcomes (BMIO) and Musculoskeletal Rehabilitation Sciences (MRS).

# Your Application Goes to the NIH Center for Scientific Review (CSR)

## Focal Point for Initial Review at NIH



- Receives all NIH applications
- Refers them to NIH Institutes/Centers and to scientific review groups
- Reviews majority of grant applications for scientific merit

# The NIH Peer Review Process

**PI Applicants: PI Initiative/FOAs**

**Peer Review (at CSR and ICs)  
Applications → Study Sections → Ranking → Percentiling**

**IC  
Strategic Goals/Awards/Funding**

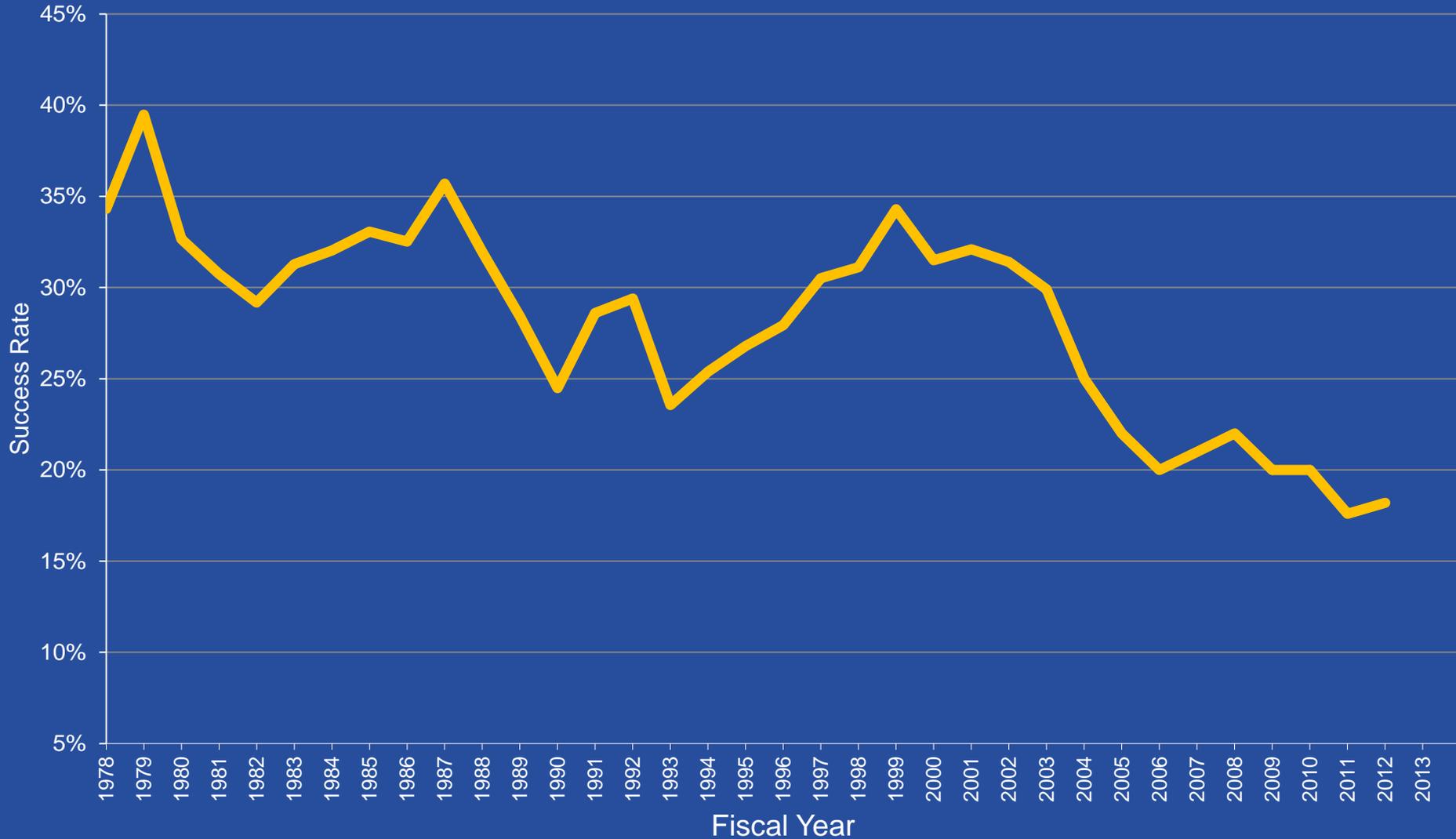
**Research**

- **Outcome Progress (Publications/Citations)**
- Public Health**

# CSR Peer Review

- 85,000 applications received
- 58,000 applications reviewed at CSR
- 16,000 reviewers
- 230 Scientific Review Officers
- 1,465 review meetings

# Grant Success Rates FY 1978-2012



# Analysis of NIH Peer Review of Pain Applications for IPRCC

Jonathan Horsford, PhD, Scientific Review Officer, NIDCR

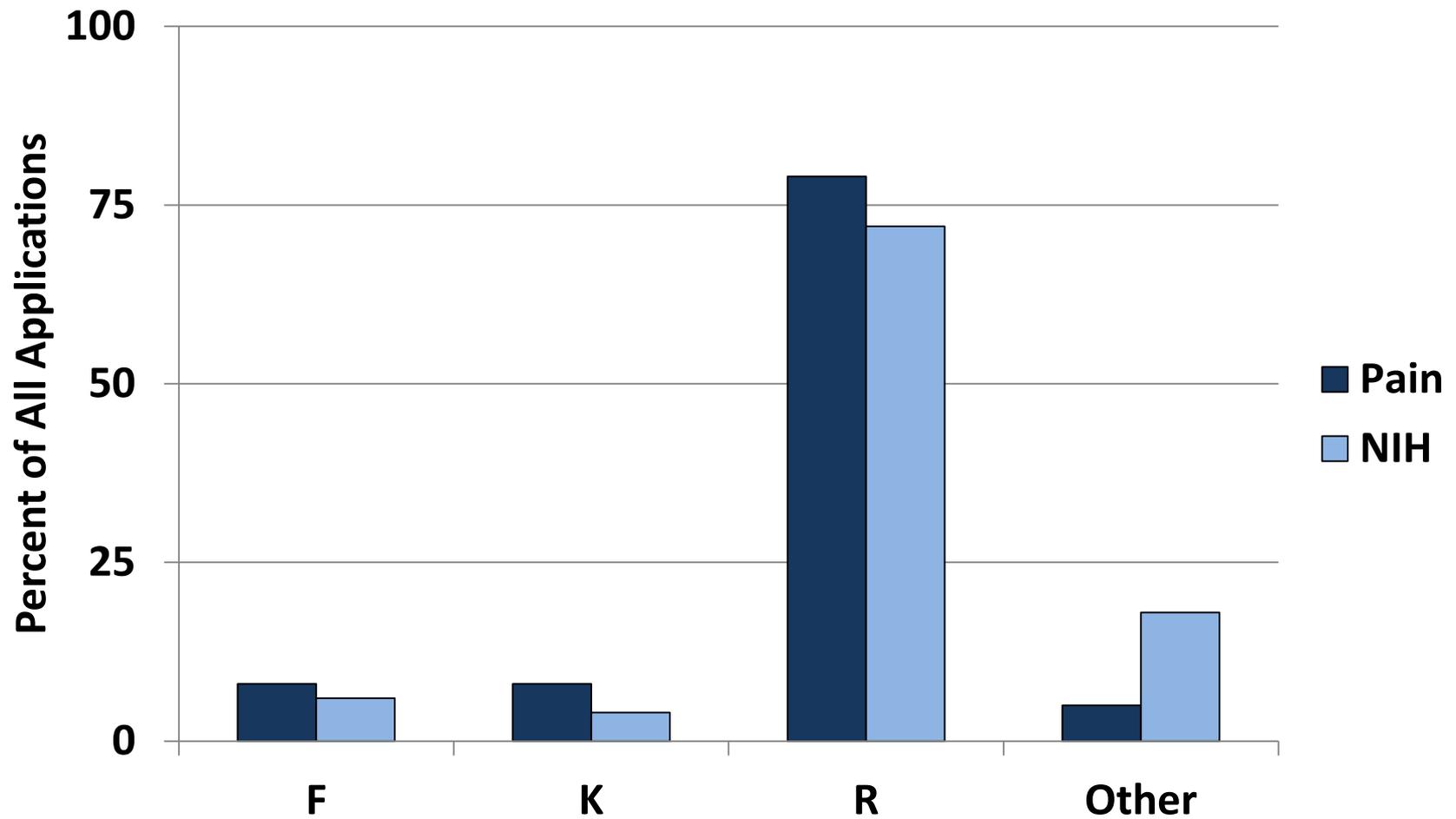
Amy Adams, PhD, Director, Office of Science Policy and Analysis, NIDCR

Linda Porter, PhD, Pain Health Policy Advisor, NINDS

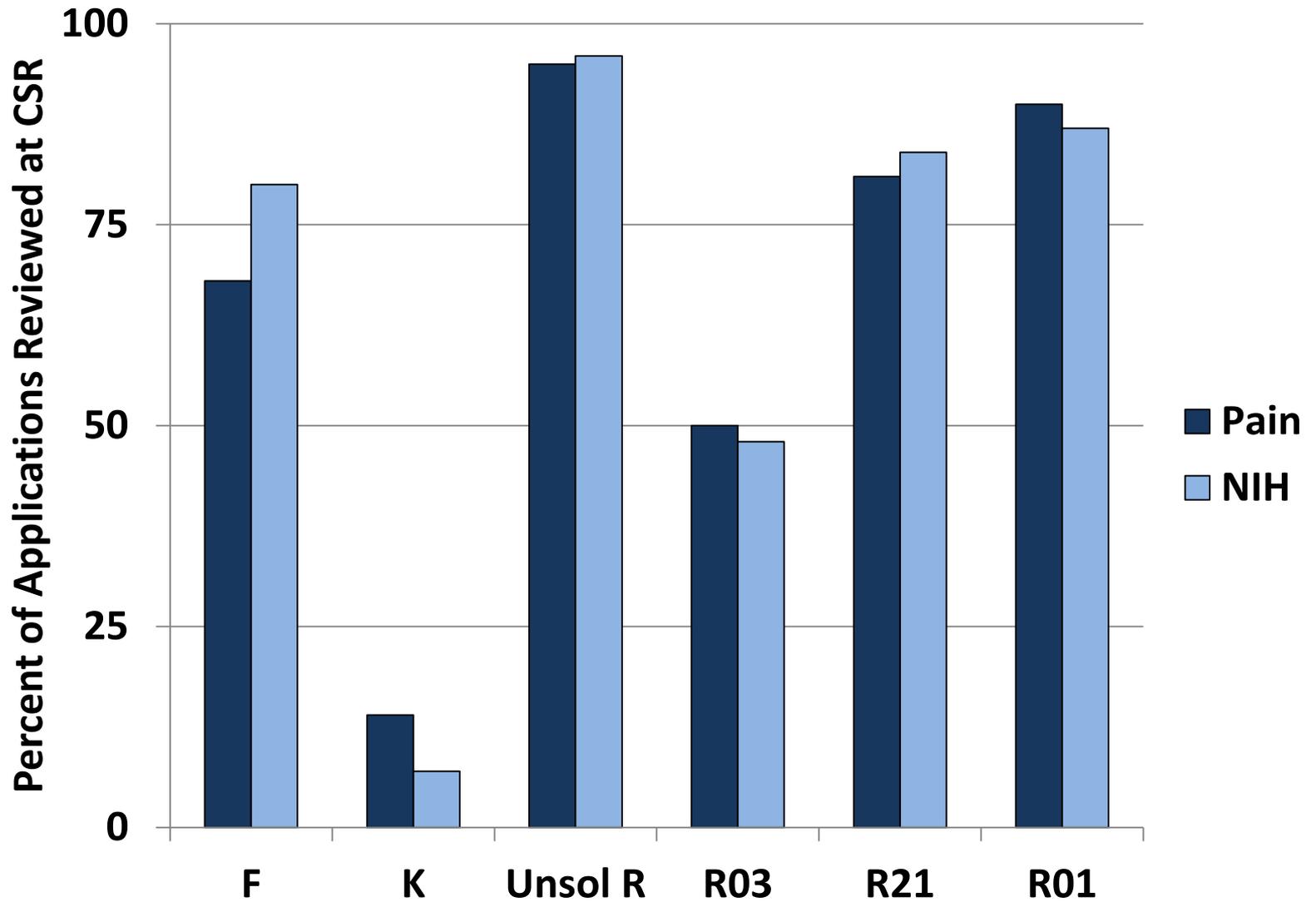
# Overview of Pain Applications

- Coded as 'Pain Conditions- Chronic'
- 2010-2012

# Activity Distribution



# Locus of Review



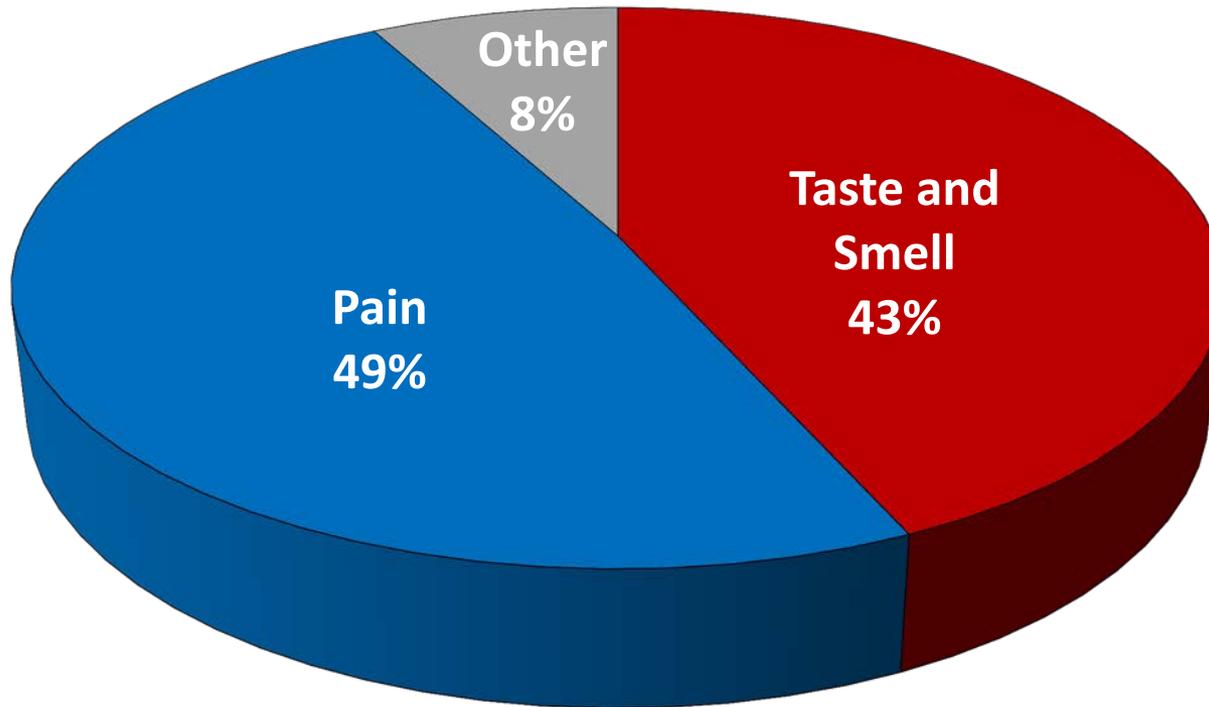
# Pain Application Study Sections

- IOM Pain Report, Recommendation 5.1
  - “Publish a list of NIH study sections that review pain research”
- Focus on ‘unsolicited’ R applications
- Discussions with CSR for input
- List of study sections and IRGs published on IPRCC and NIH pain consortium websites

# Analysis of Pain Peer Review- Somatosensory and Chemosensory Systems (SCS)

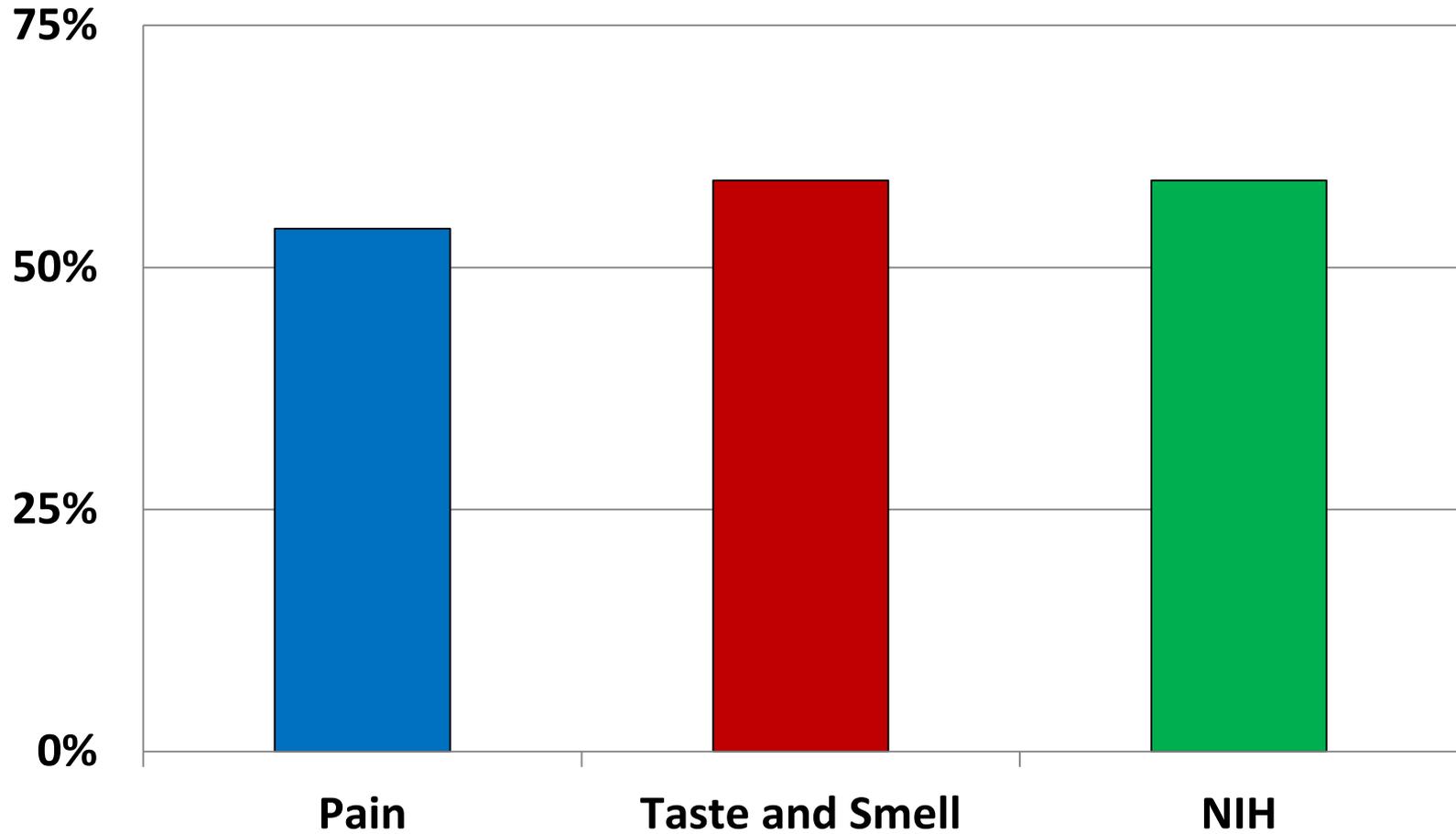
- SCS reviews >20% of pain applications
- Response to community's queries regarding 'performance' of pain vs. 'taste and smell' applications
- Focus on unsolicited R applications, 2010-2012

# Somatosensory and Chemosensory Systems (SCS)



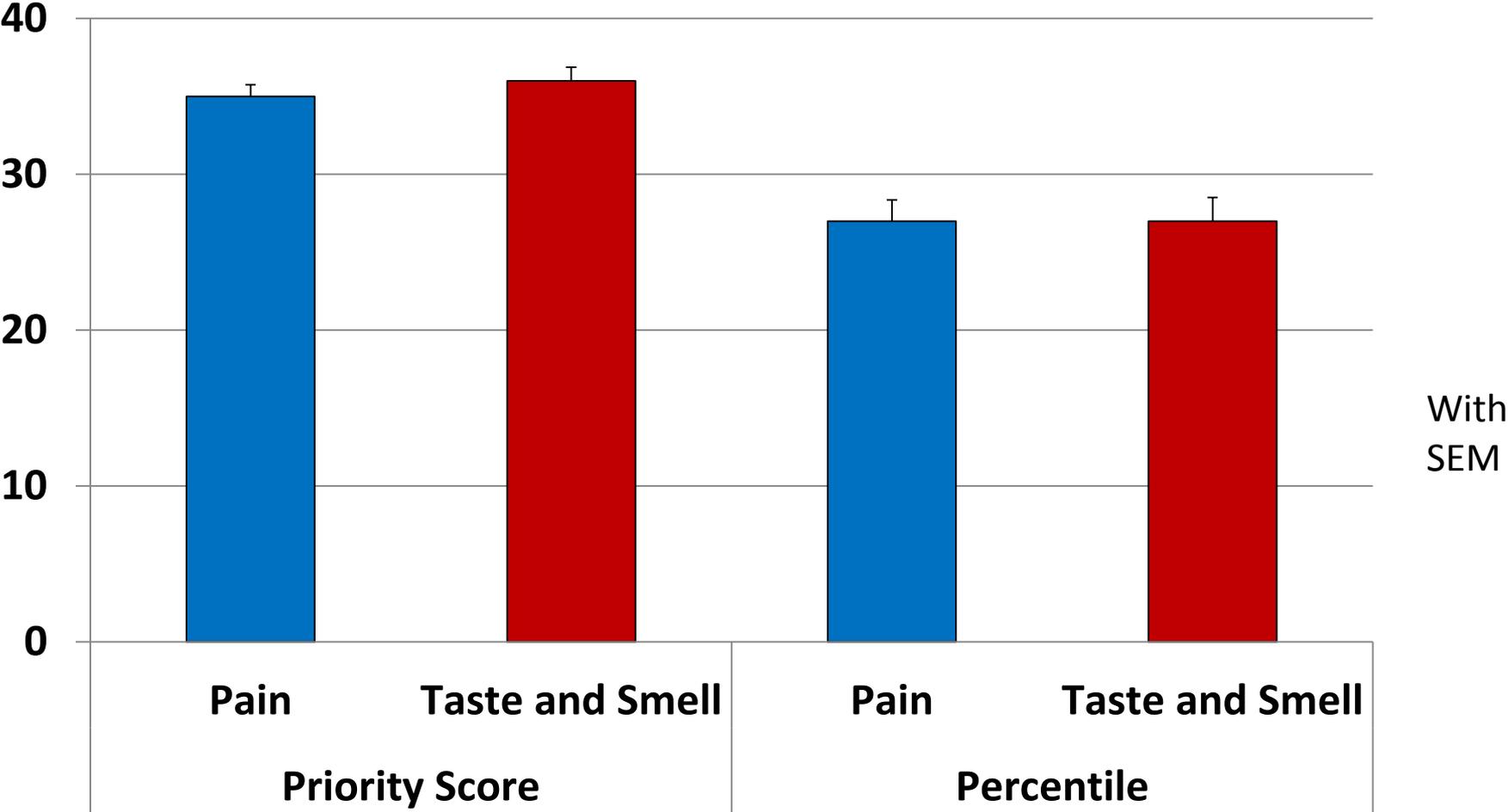
Unsolicited R  
2010-2012

# Percent Discussed

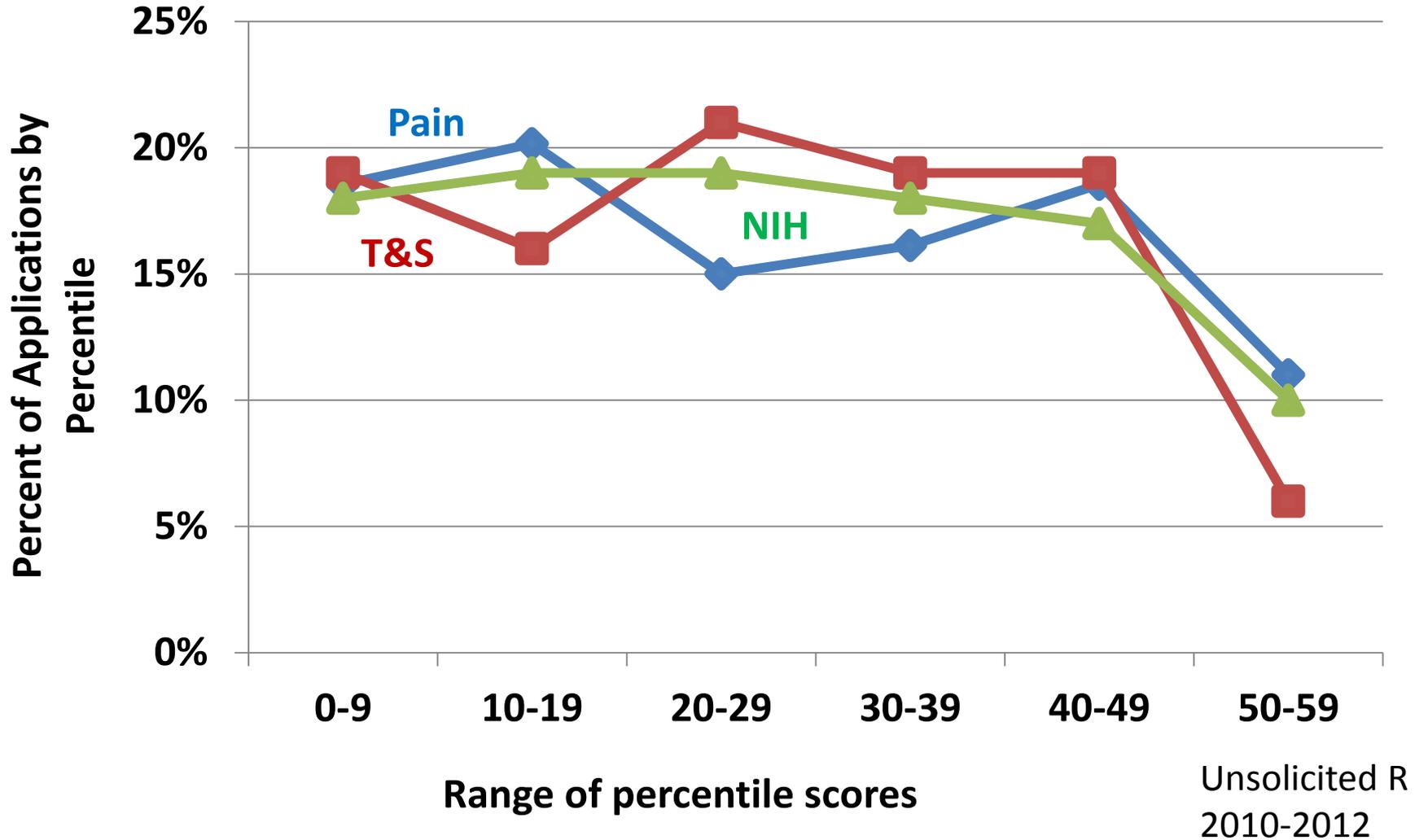


Unsolicited R  
2010-2012

# Average Priority Score and Percentile



# Percentile Score Distribution



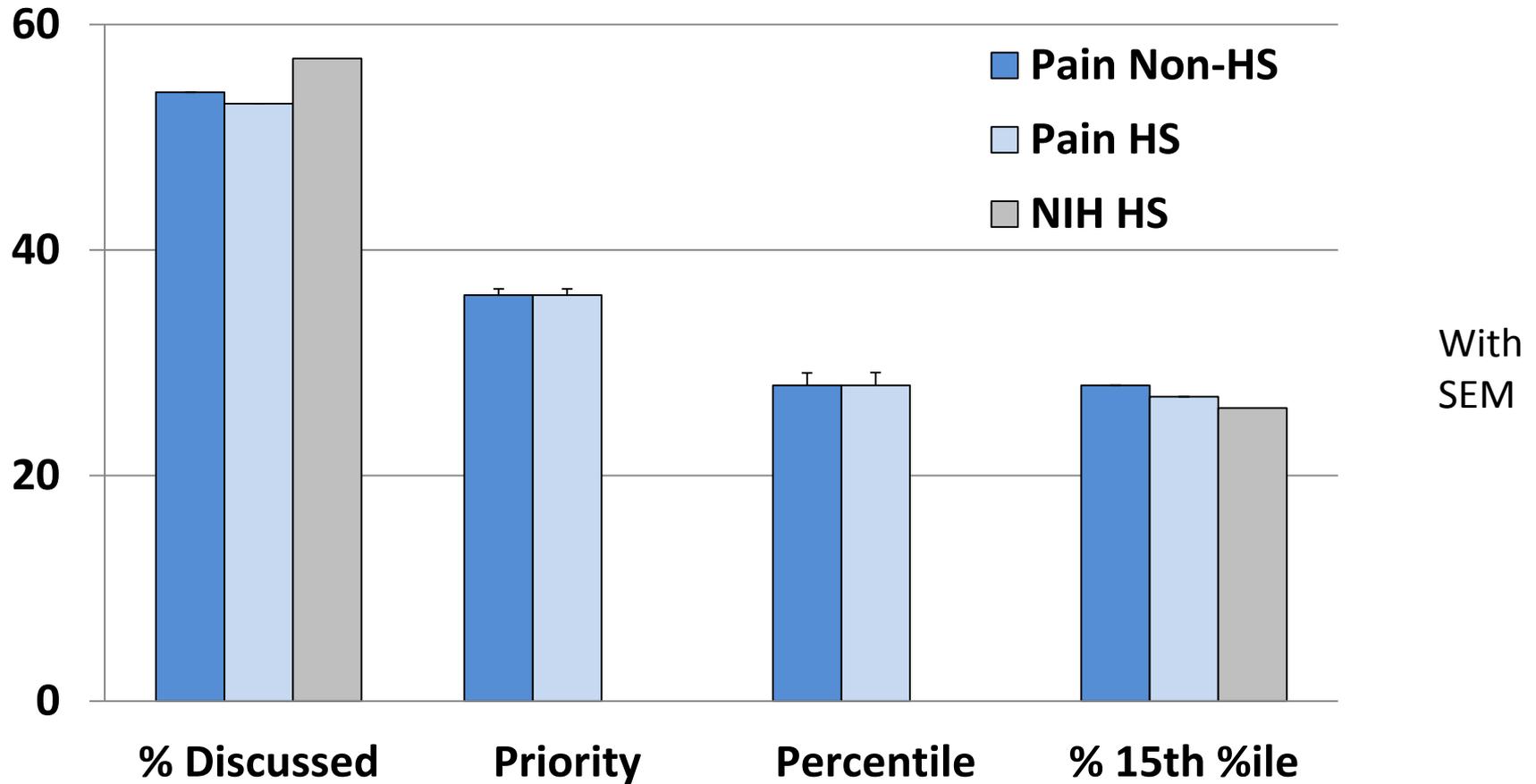
# Analysis of Pain Peer Review- SCS

- There are no notable differences in the final scores of unsolicited R mechanism- pain versus taste and smell applications in peer review.
- There is a greater spread between initial and final criterion scores for pain applications, suggesting that pain applications improve slightly more than taste and smell applications after discussion.
- A smaller percent of resubmitted and competing renewal pain applications compared to taste and smell applications are submitted to SCS, but are submitted in similar percent to those at NIH overall.

# Analysis of Pain Peer Review: Human Subjects Applications

- Ensure that pain applications focusing on clinical research do not 'perform' poorly in peer review
- Pain-Chronic Conditions 'R' applications in 2012 only; include human subjects (HS) applications

# Human Subjects Pain Applications



2012, R, No business

# Analysis of Pain Peer Review Summary

- There appear to be no major differences in the types of data reviewed for unsolicited R pain applications in peer review
  - Pain-chronic conditions
  - SCS: Pain compared to taste and smell
  - Humans Subjects: BMIO and MRS

# CSR review issues in early 2013

# CSR AII

## Percentiles at scores of 20, 25, 30

	Score 20	Score 25	Score 30
2013/05	6	11	18
2013/01	9	15	22
2012/10	9	15	22
2012/05	8	15	22
2012/01	8	15	22
2011/10	8	14	21
2011/05	8	14	21
2011/01	7	14	21
2010/10	7	13	20
2010/05	7	13	20
2010/01	7	12	19
2009/10	7	13	19



# 2009 Scoring Chart

Impact	Score	Descriptor	Additional Guidance on Strengths/Weaknesses
High	1	Exceptional	Exceptionally strong with essentially no weaknesses
	2	Outstanding	Extremely strong with negligible weaknesses
	3	Excellent	Very strong with only some minor weaknesses
Medium	4	Very Good	Strong but with numerous minor weaknesses
	5	Good	Strong but with at least one moderate weakness
	6	Satisfactory	Some strengths but also some moderate weaknesses
Low	7	Fair	Some strengths but with at least one major weakness
	8	Marginal	A few strengths and a few major weaknesses
	9	Poor	Very few strengths and numerous major weaknesses

## Additional Information for Scoring Guidance Table

**Non-numeric score options:** NR = Not Recommended for Further Consideration, DF = Deferred, AB = Abstention, CF = Conflict, NP = Not Present, ND = Not Discussed

**Minor Weakness:** An easily addressable weakness that does not substantially lessen impact

**Moderate Weakness:** A weakness that lessens impact

**Major Weakness:** A weakness that severely limits impact

## Overall Impact:

The likelihood for a project to exert a sustained, powerful influence on research field(s) involved

Overall Impact	High			Medium			Low		
Score	1	2	3	4	5	6	7	8	9

e.g. Applications are addressing a problem of high importance/interest in the field. May have some or no technical weaknesses.

e.g. Applications may be addressing a problem of high importance in the field, but weaknesses in the criteria bring down the overall impact to medium.

e.g. Applications may be addressing a problem of moderate importance in the field, with some or no technical weaknesses

e.g. Applications may be addressing a problem of moderate/high importance in the field, but weaknesses in the criteria bring down the overall impact to low.

e.g. Applications may be addressing a problem of low or no importance in the field, with some or no technical weaknesses.

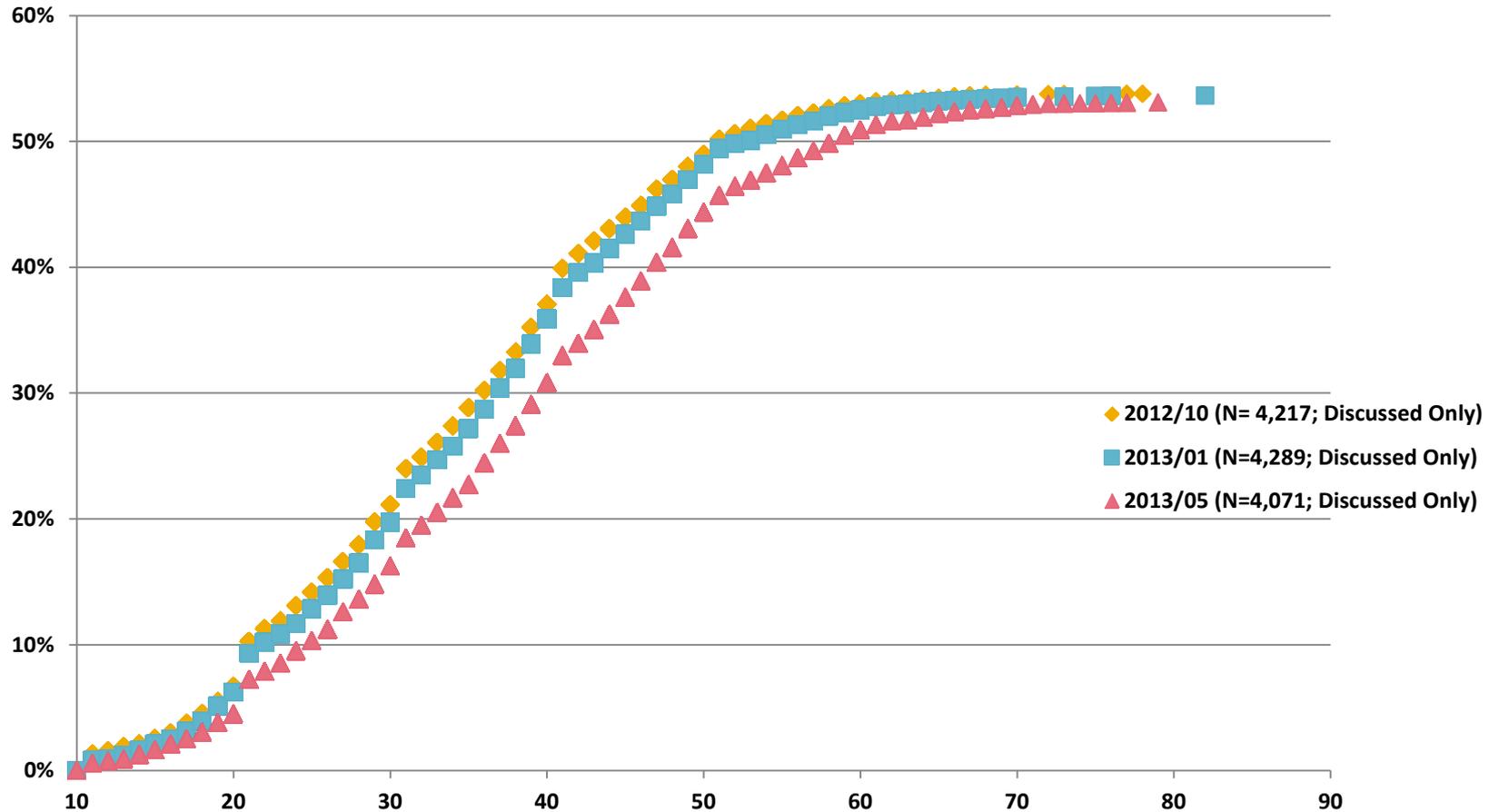
## Evaluating Overall Impact:

Consider the 5 criteria: significance, investigator, innovation, approach, environment (weighted based on reviewer's judgment) and other score influences, e.g. human subjects

**5 is a good medium-impact application, and the entire scale (1-9) should always be considered.**

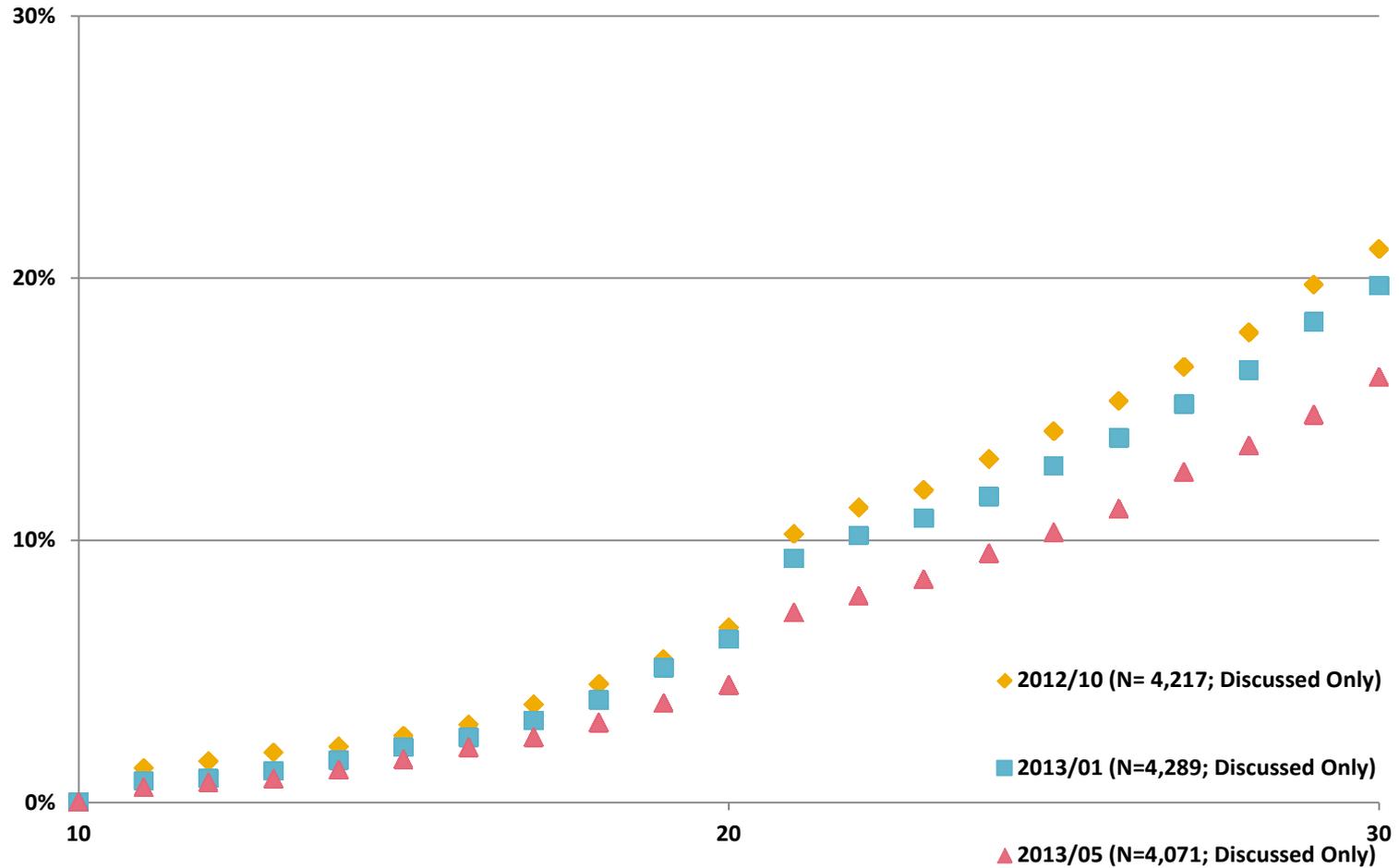
# CSR All

## Percentage of R01s vs Overall Impact Score

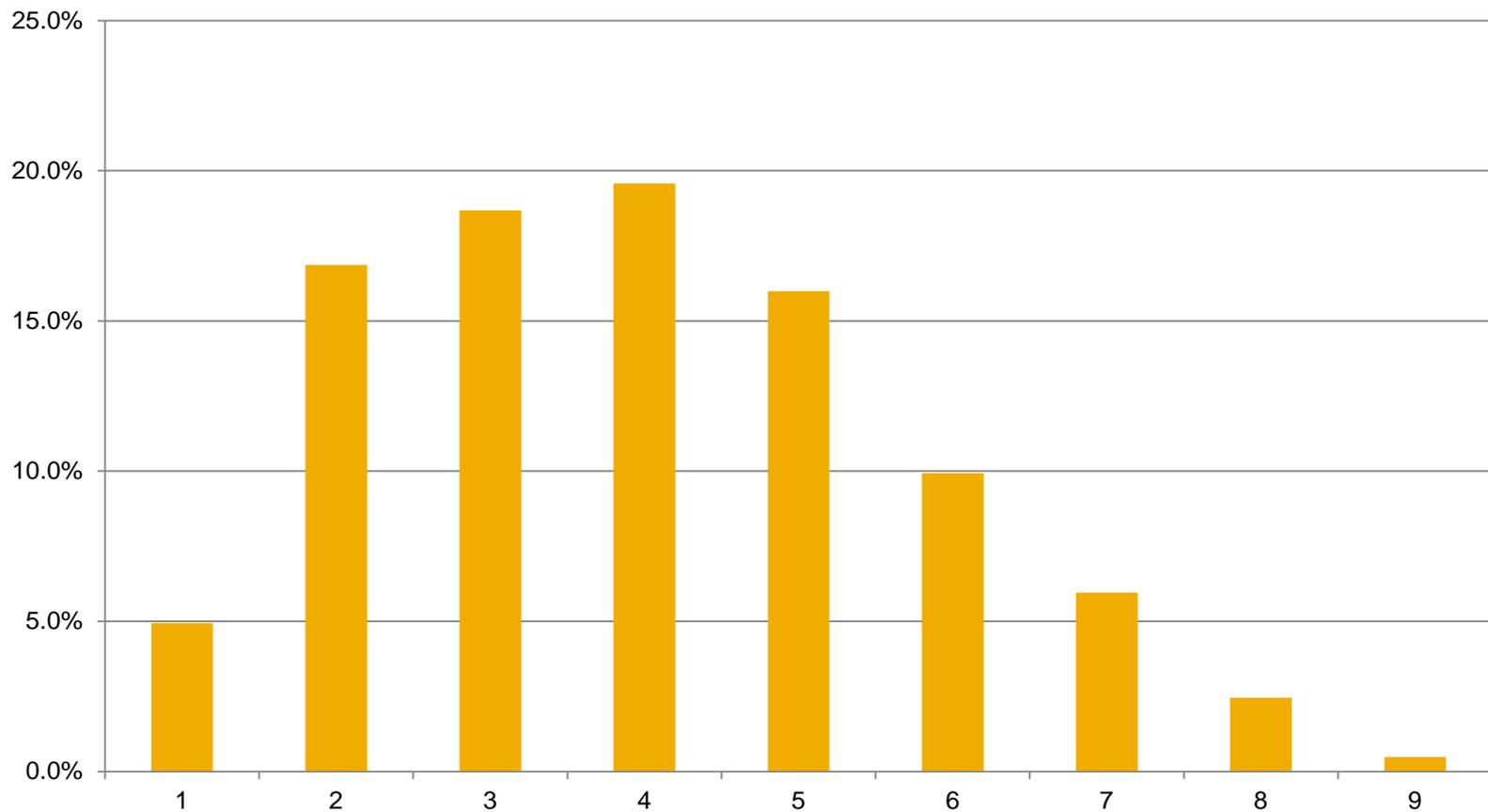


# CSR All (Expanded Scale)

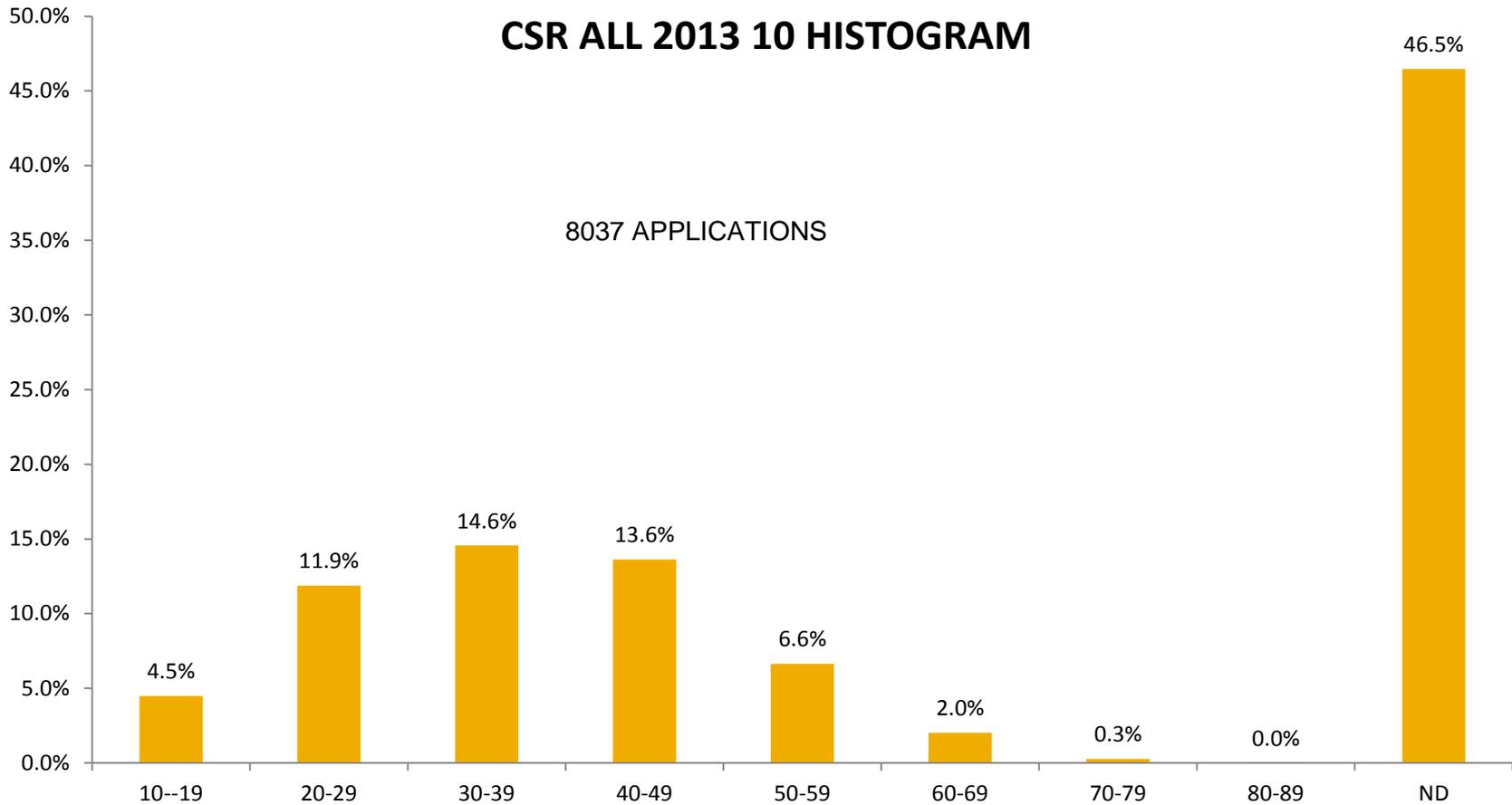
## Percentage of R01s vs Overall Impact Score



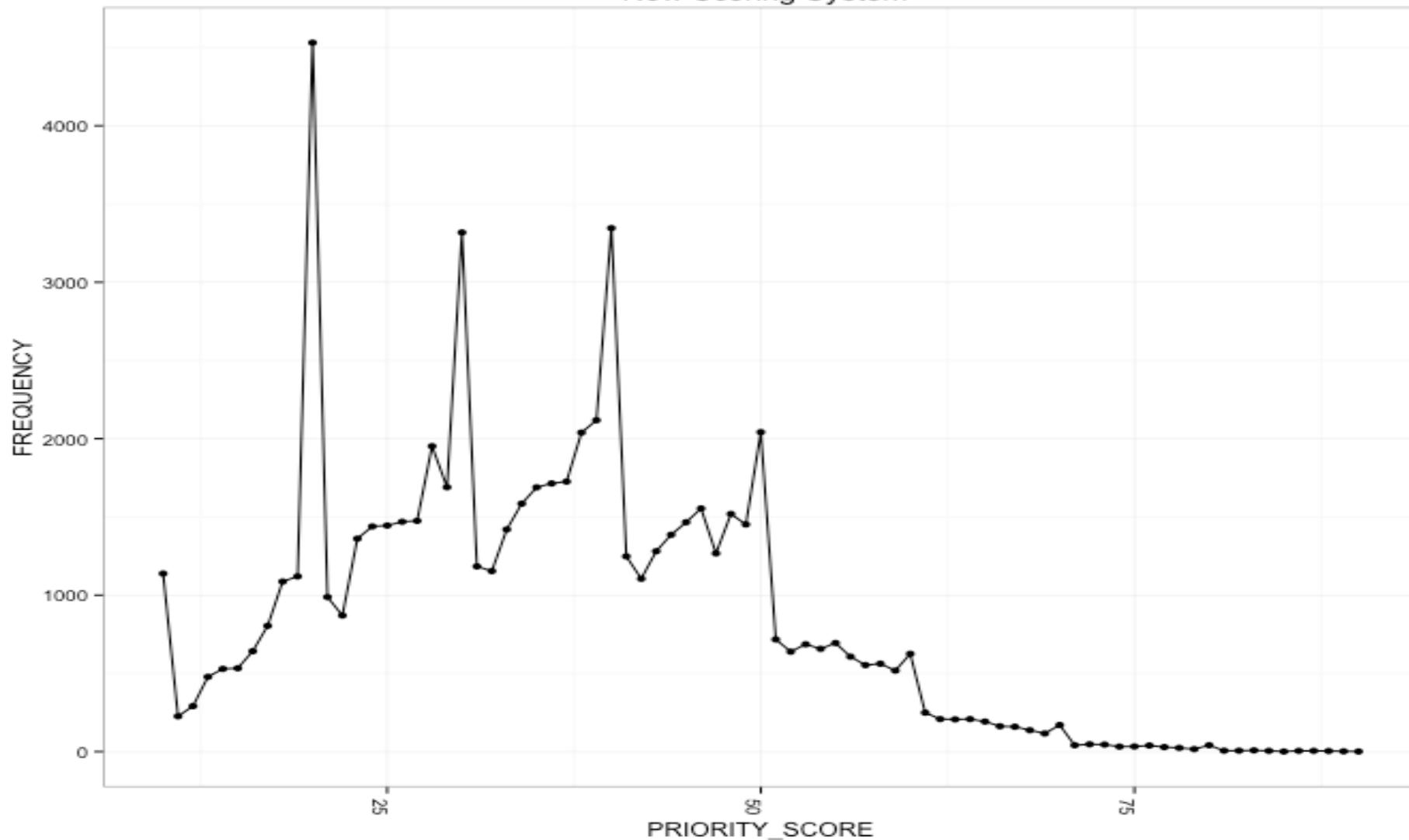
# Distribution of preliminary impact scores



# Distribution of scores for discussed applications



Frequency Plot for 68136 CSR R01s  
New Scoring System



# Diversity and Fairness of Peer Review

# Ginther et al. (2011) Findings

- Applications with strong priority scores were equally likely to be funded regardless of race
- African American applicants were 10 percentage points less likely to receive NIH research funding compared to Whites
- Suggested Explanations:
  - Bias in Peer Review
  - Cumulative Disadvantage

# Recommendations from ACD

- Set up Peer review subcommittee - Done
- Provide more information for ND applications - Done
- Text analysis of applications, summary statements and discussion
- Evaluation of anonymized applications
- Diversity Awareness Training of NIH staff

# Increasing Diversity of SRGs

In the last year reviewers from URM populations have increased by 25% to 10% of reviewers.

This is approximately double the proportion of awardees from URM populations.

# Early Career Reviewer Program

# Purpose of the Early Career Reviewer (ECR) Program

- To train qualified scientists without significant prior review experience so that they become effective reviewers
- To help emerging researchers advance their careers by exposing them to review experience
- To enrich the existing pool of NIH reviewers by including scientists from less research-intensive institutions as well as those from research-intensive institutions.

# Requirements for Being an ECR

- **Has not reviewed for NIH beyond one mail review**
- **Demonstrates scientific qualifications, such as:**
  - **A faculty appointment or equivalent**
  - **An active independent research program and recent publications in good research journals**
- **Does not have NIH R01 or equivalent funding**

# Program Statistics

**2,134** ECRs have been accepted into the program

**693** ECRs have served on study sections to date

**32%** URM scientists

Send a current CV and a list of terms that describe your scientific expertise to:

[CSREarlyCareerReviewer@mail.nih.gov](mailto:CSREarlyCareerReviewer@mail.nih.gov)

# Advancing Additional Review Platforms

- Additional Review Platforms Help Recruit Reviewers by Reducing Travel
- Electronic Review
  - Telephone Assisted Meetings
  - Video Assisted Discussions
  - Internet Assisted Meetings
  - Telepresence Meetings
- Also, Editorial Board style meetings

# Videoconference Study Sections



# The Future

- Better distribution of applications across study sections
- Better tools for applicants, for referral and review
- Increased diversity and reduced award disparities
- Better service to applicants and to ICs
- Structural IRG evaluations
- Develop a science of peer review so we can continuously improve the **quality** of peer review

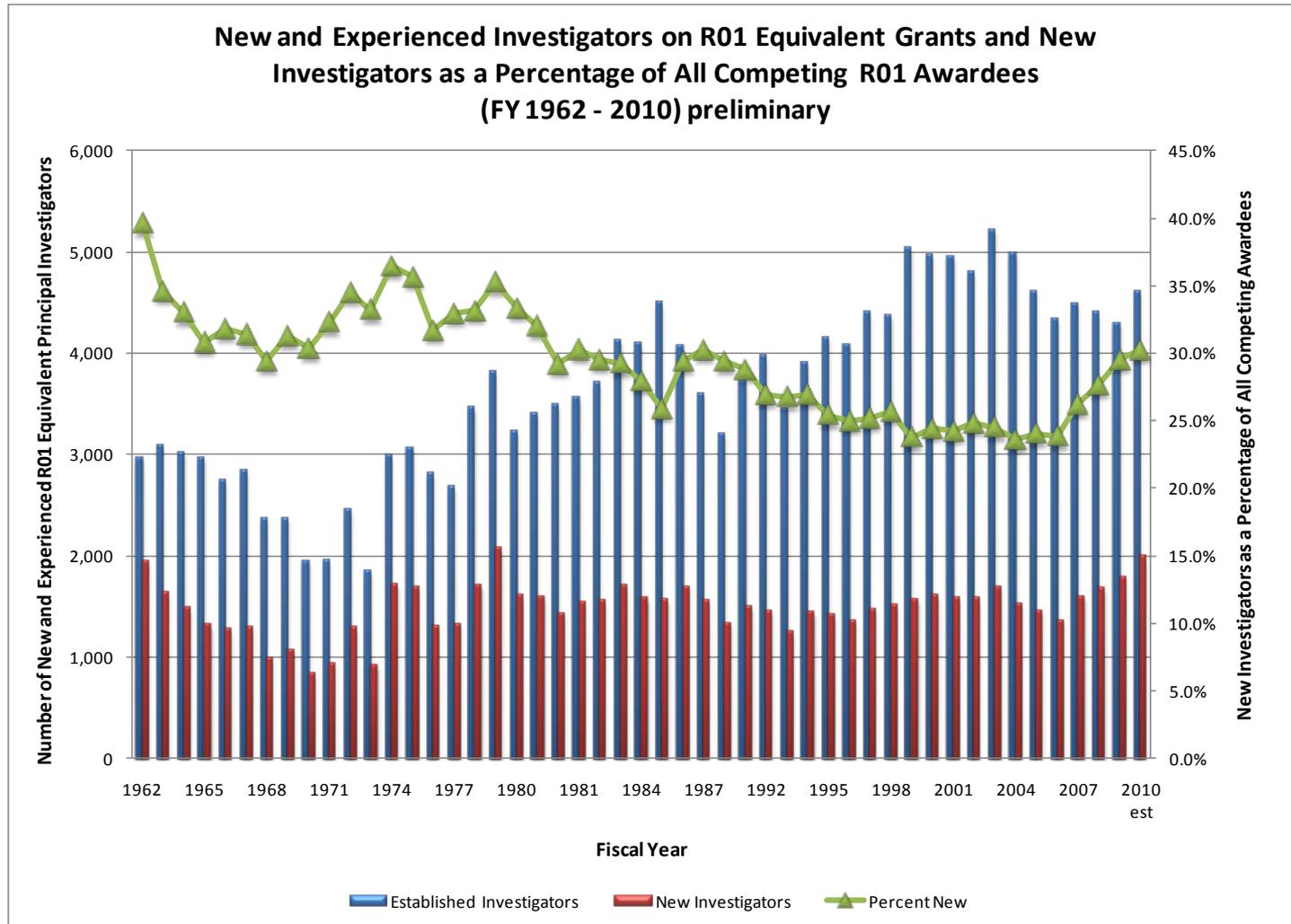
# This is CSR



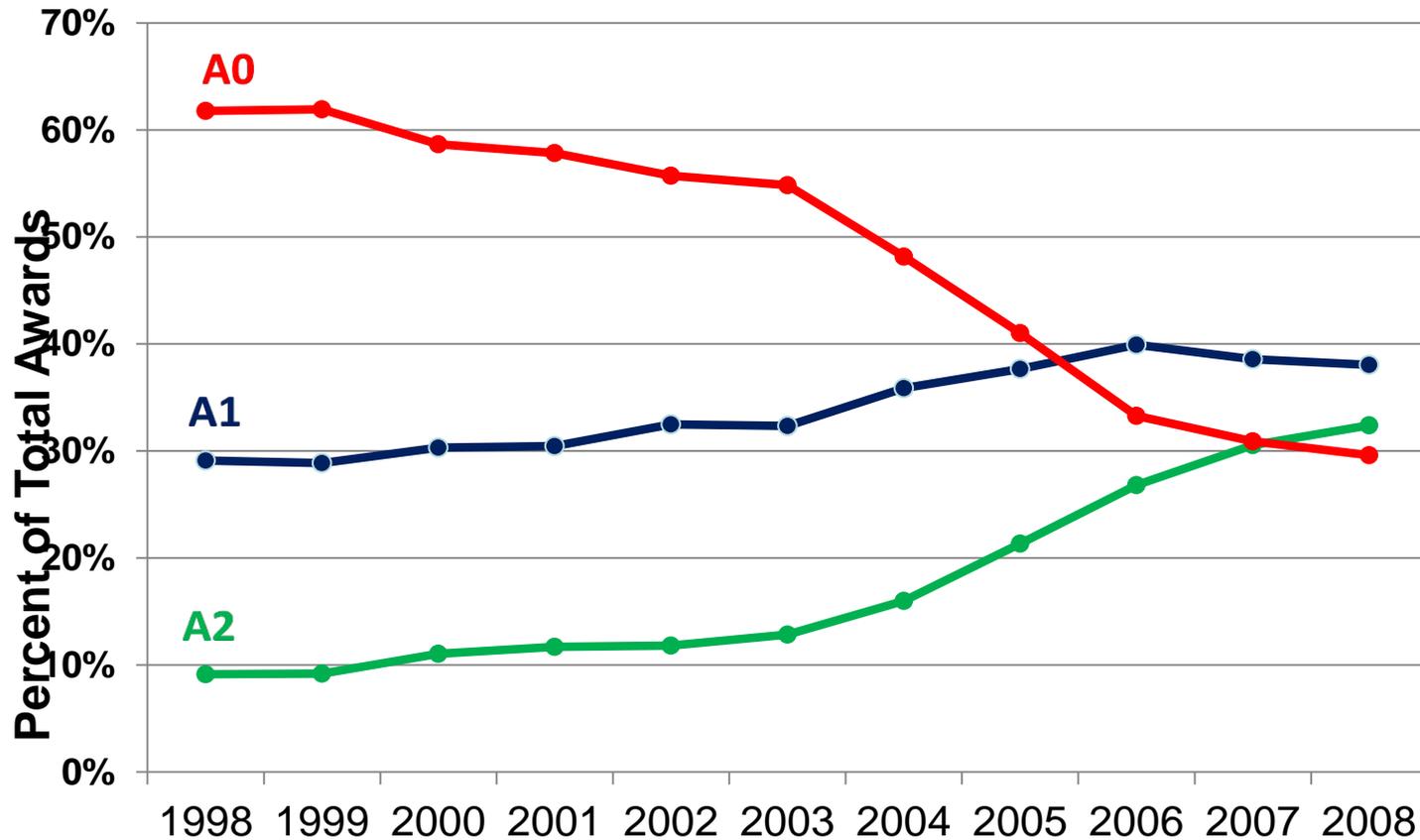
**Questions? Comments?**

**CSRDIRECTOR@csr.nih.gov**

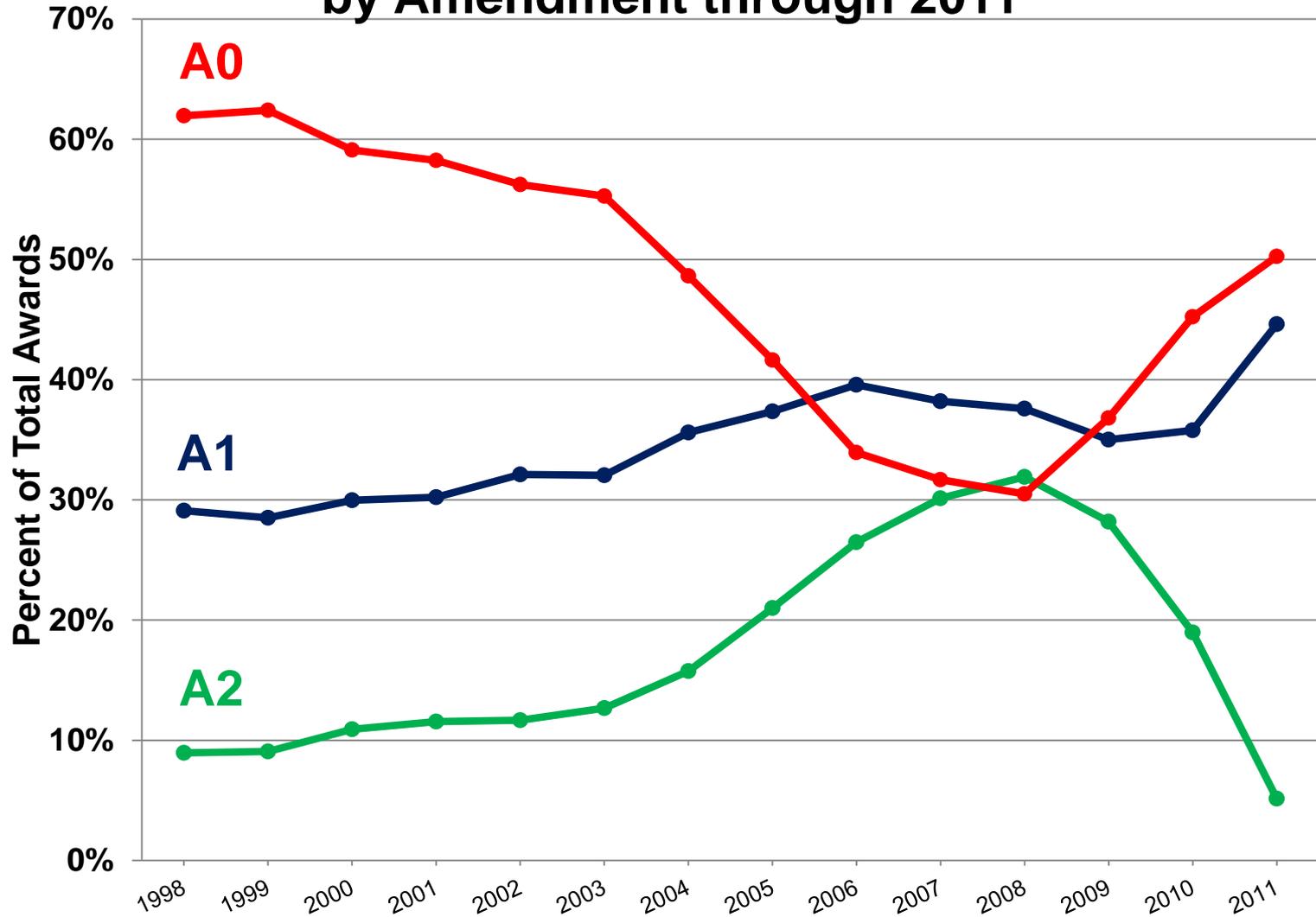
# Funding New Investigators



# Funding the Most Promising Research Earlier



# Percent of R01 Equivalent Awards by Amendment through 2011



# Funding the Most Promising Research Earlier

