

Dual Anonymous Proposal Review

Discussion

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Contributions from the Chandra, Hubble and JWST proposal teams

What is dual anonymous review?

Proposals are prepared so they can be reviewed without seeing the name and institution of the proposer

- PI and team member names and affiliations are redacted from any form information provided to reviewers before the review
- References are numbered; the reference list is often set outside the page limits on science justification.
- Proposers are instructed to use non-self-identifying language (e.g. no text references to “Our past work ...”)
- Reviewers are instructed to not speculate about or discuss possible identities of the proposers
- After the top proposals are selected, a 2nd ‘unveiling’ step happens where the team’s skills and qualifications are reviewed.

Some key differences with non-anonymous

Extra documents collected: a team document that is only reviewed if the proposal is selected by science.

The paragraph about past results with XMM would be moved to the team document if it was still desired to review it at some point.

The proposal reviewers never learn the identity of proposals they did not select.

The focus of the panel discussion is focused on the science; the publication history and experience of the proposers is not discussed in the main assessment.

HST panels reported that the difference in the panel experience was refreshing, in terms of really focusing on the science

Chandra reports there was extra work in managing proposal discussions, including needing an extra person in the room to adjudicate conversations that got off-topic and answer concerns about proposal language that might reveal the proposer

HST Outcomes

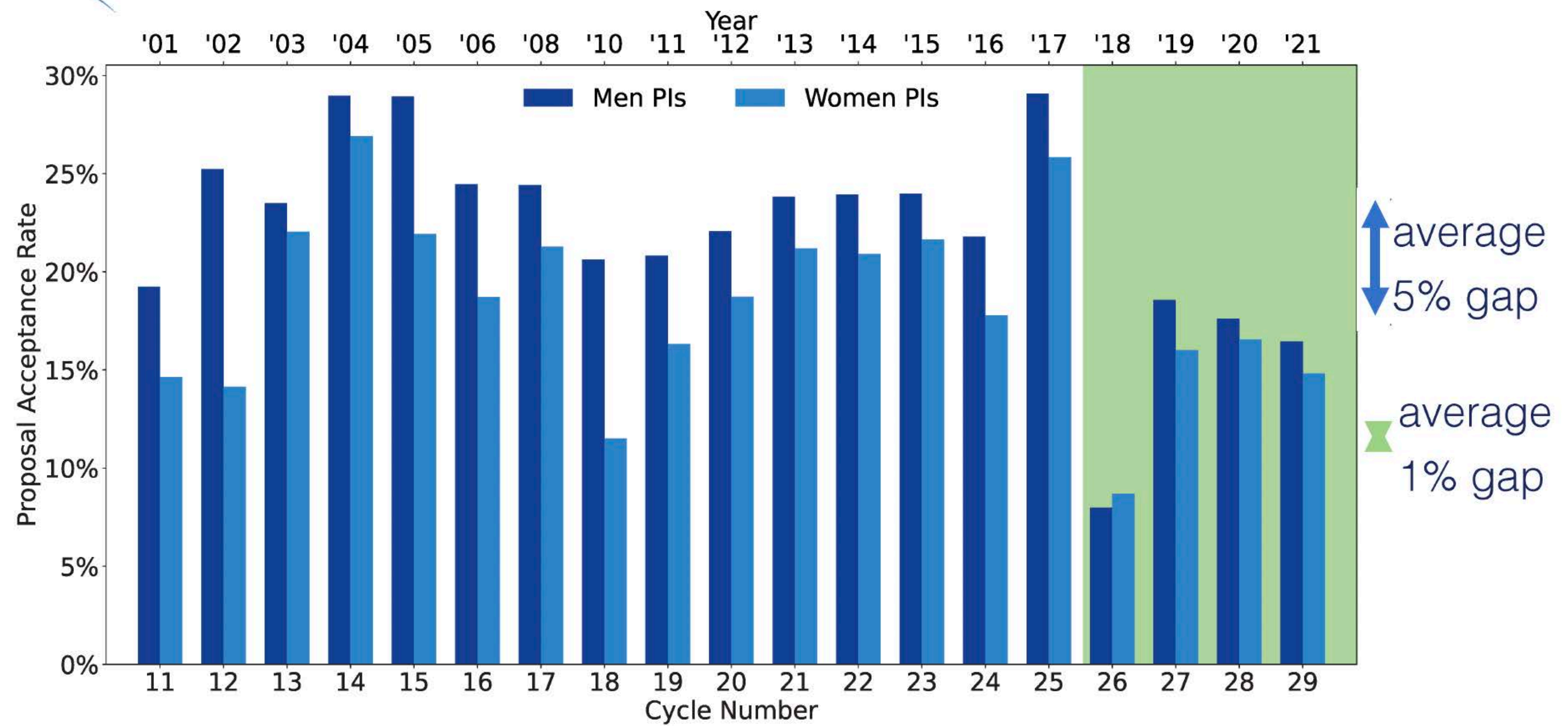
Initial outcome declared success with small N (see presentation by Lou Strolger, shared last time)

Updated HST Outcomes

Gap between gender success rates lowered but not eliminated



Dual anonymous & gender success rates



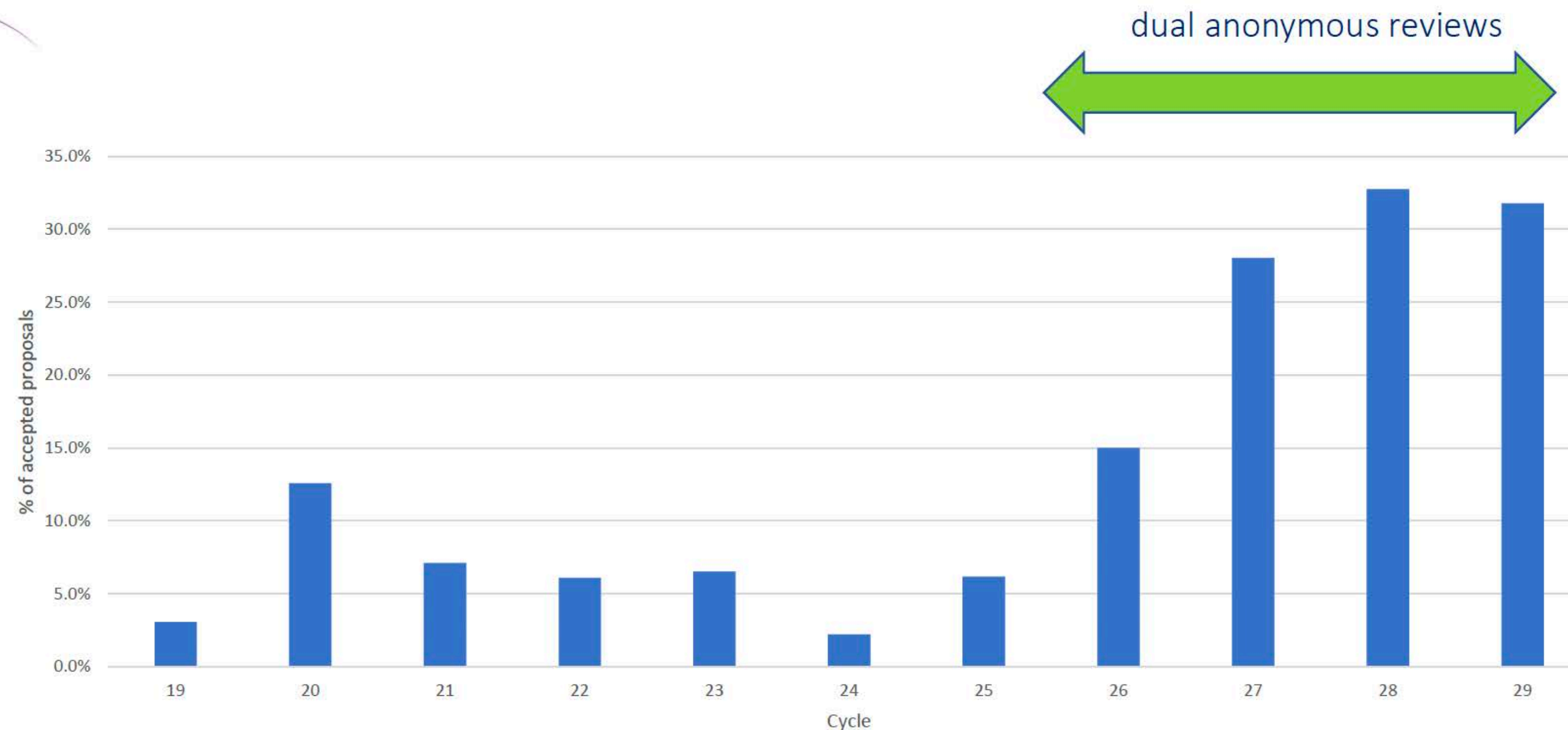
Updated HST Outcomes

Significant improvement for first-time proposers



First-time PIs

5



First-time PI fraction has increased significantly with the implementation of dual anonymous reviews

Updated HST Outcomes

Women with PhD before 2000 had lower success rates before, same or worse success rates after

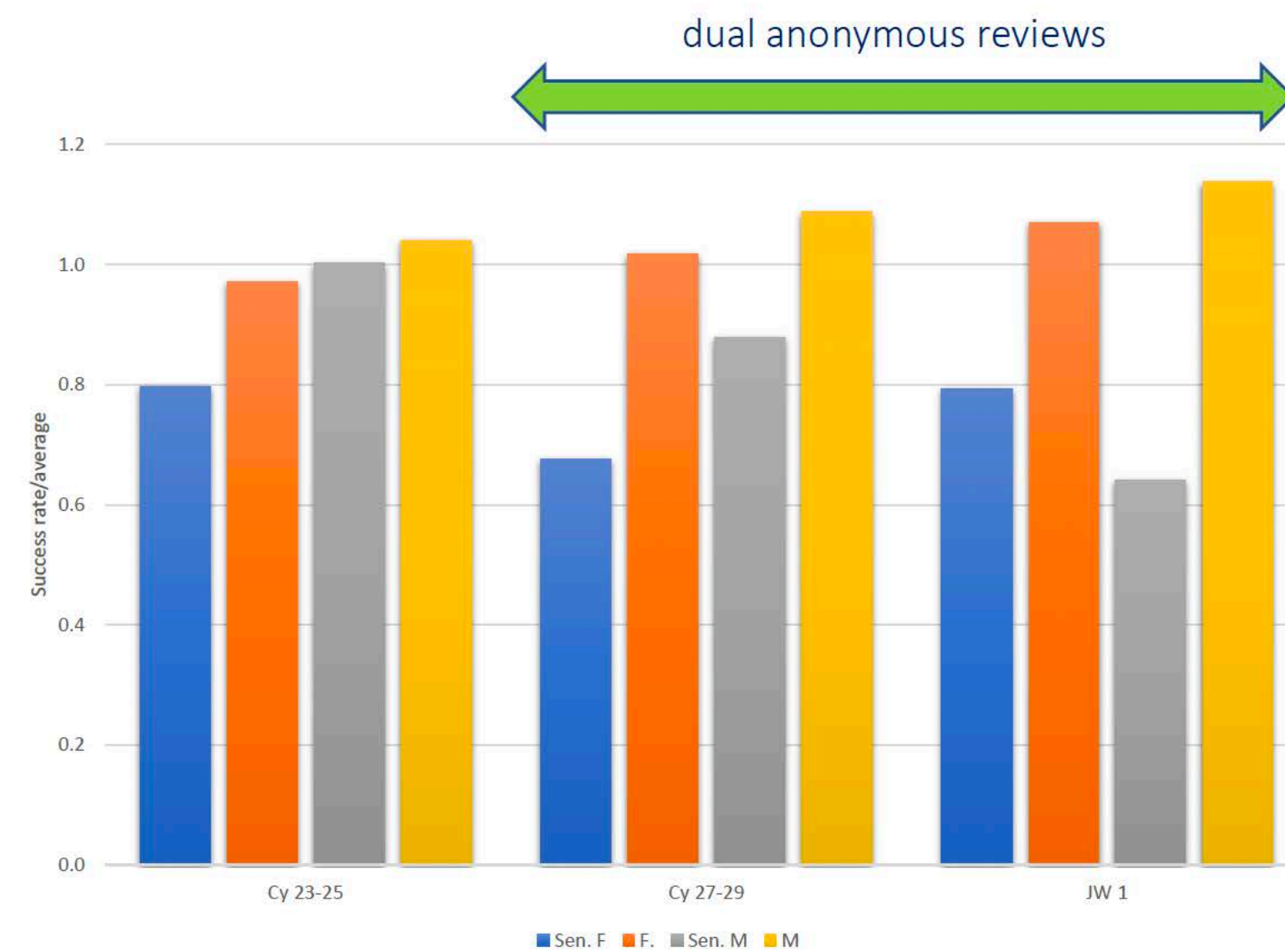


Proposal success rate with seniority

Success rates of proposals led by

- Female PIs, Phd pre-2000
- Female PIs, Phd 2000+
- Male PIs, Phd pre-2000
- Male PIs, Phd 2000+
- Normalised against the average success rate

The fraction of successful proposals led by more senior male and female PIs has decreased with the move to dual anonymous.



Updated HST Outcomes

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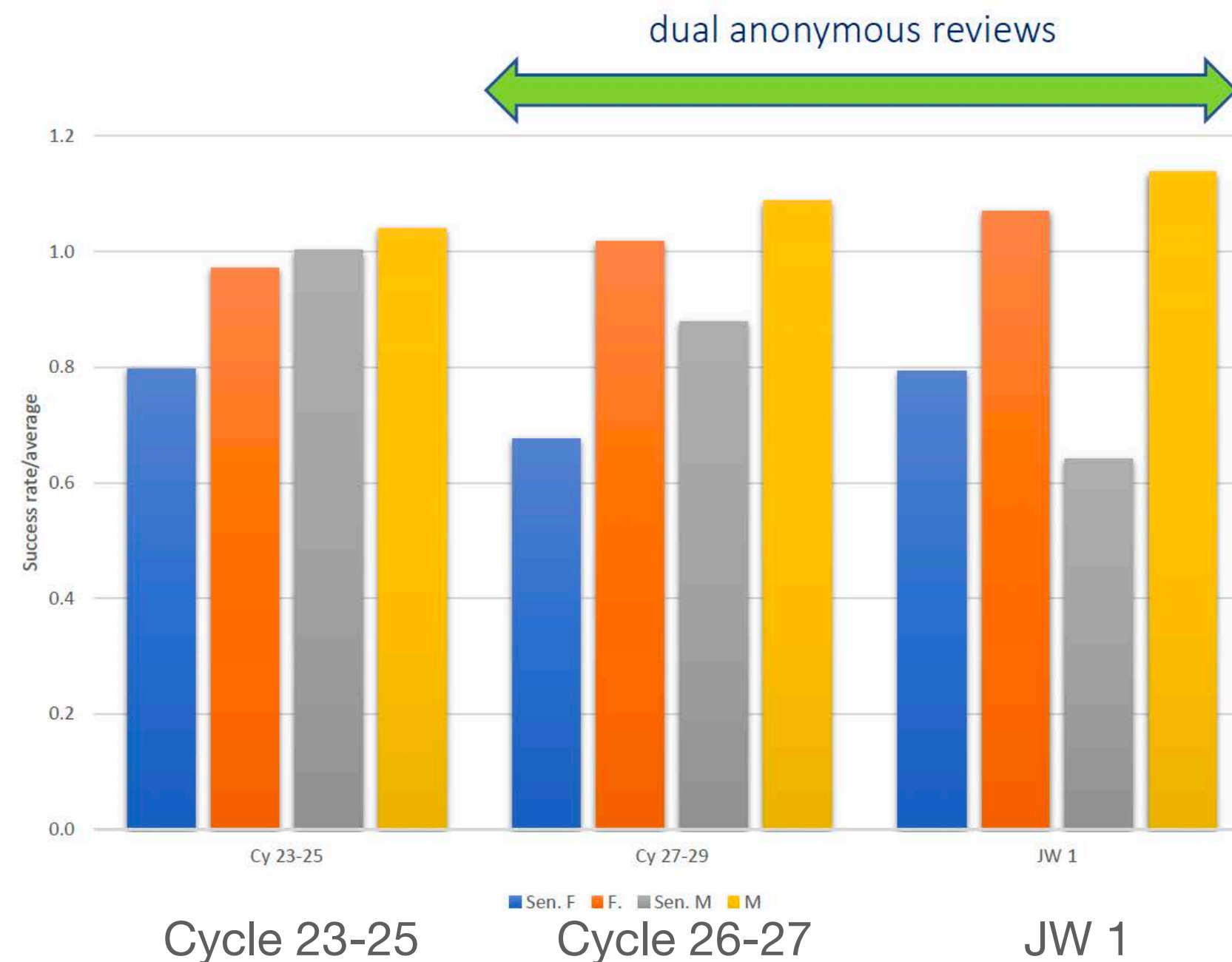


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⁶ The number of women in this category is low, and getting lower; the results of the JWST review. There are ~ 30-100 women proposers missing from the incoming sample, depending on how you normalize

JWST Cycle 1

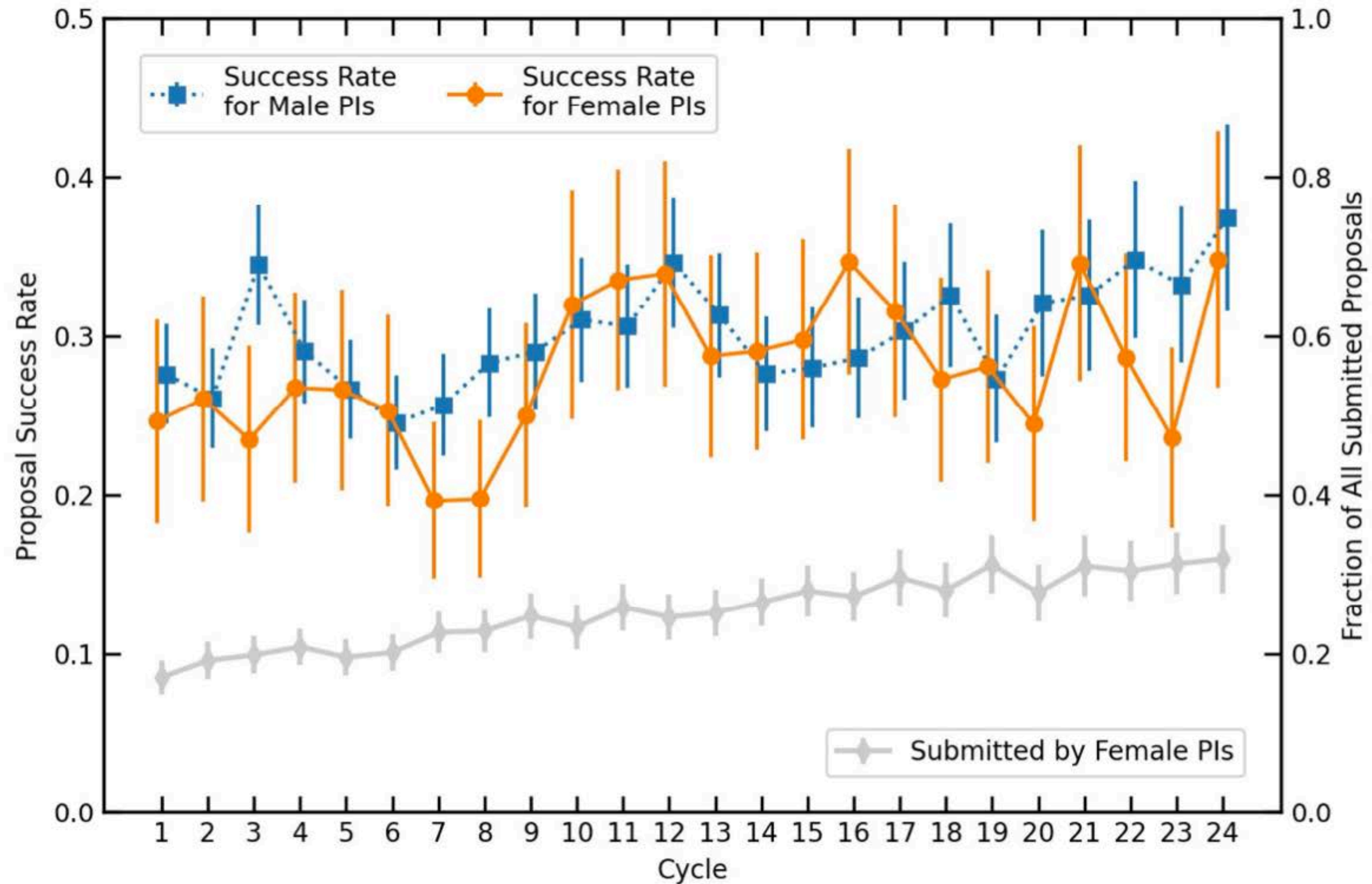
Sample	accepted	submitted	%
senF	8	45	17.8%
F	78	325	24%
senM	40	278	14.4%
M	160	627	25.5%

Table from Neill Reid, email to MD April 2023

Probability of sen-F cycle 1 result or worse: 23% (low significance).

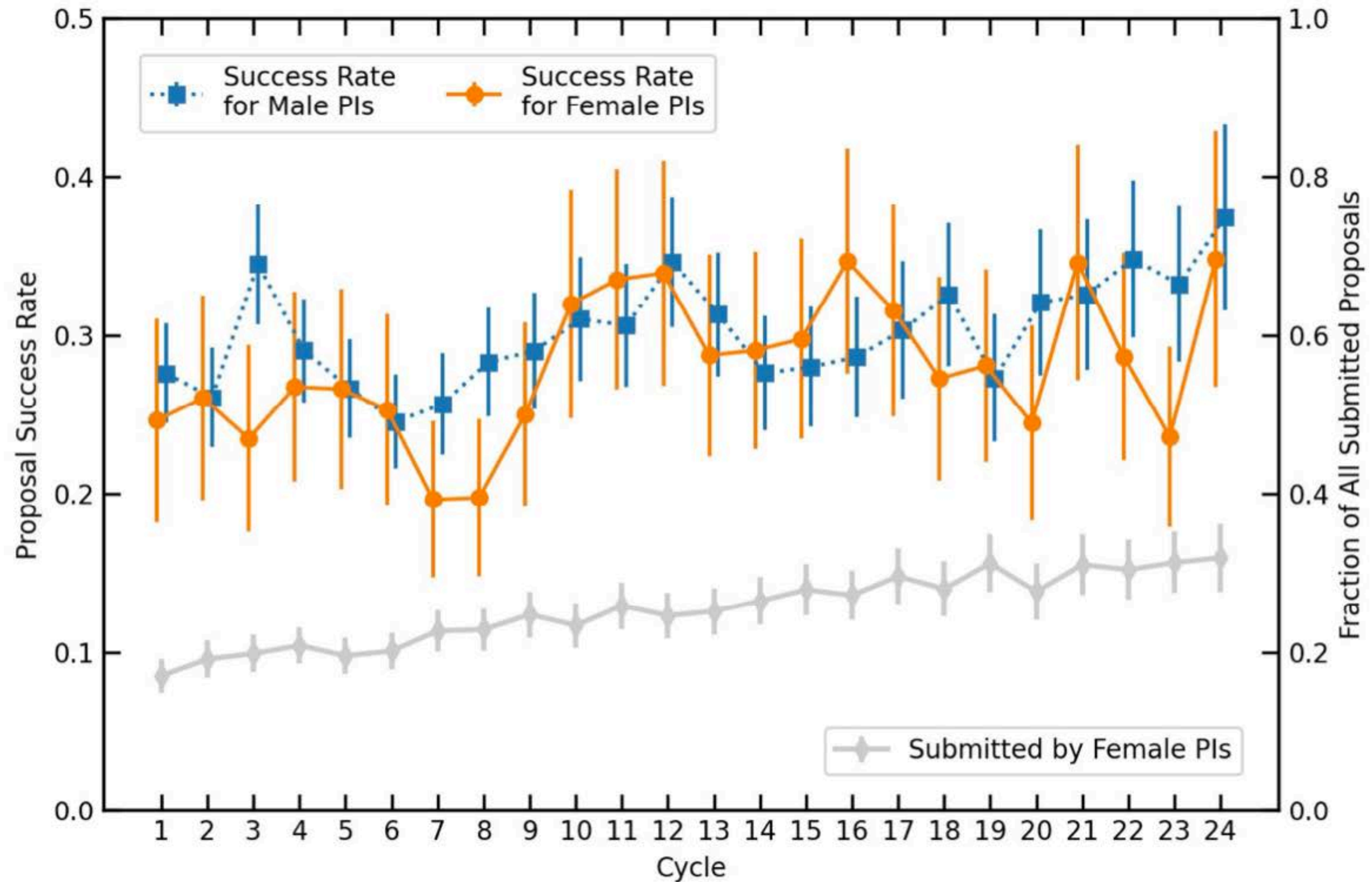
Probability of same result 3x (HST proposals/cycle=JWST/cycle) : 6%

Chandra Proposal Success Rate Outcomes



Pat Slane, email to MD

Chandra Proposal Success Rate Outcomes



Dual Anonymous
Reviews began
Cycle 23

Pat Slane, email to MD

Discussion points

- Panels from NASA Theory reviews, Hubble, JWST report that discussions were either unaffected or better
- Programs report that the review of proposers post-hoc rarely (if ever?) changes the outcome; mostly a simple check (otherwise how to notice one group doesn't submit multiple proposals?)
- The career-stage effect is real but was discovered post-hoc. Gender imbalance was the initial impetus; with gender/age imbalance noted.
- The increase in new / early-career PIs may be more of a change in proposer behavior than in suppressing reviewer bias. If the proposer teams were choosing a PI to strategically improve their chances, they can't benefit from that anymore. How to test: look at the distribution of PIs career stages before and after dual anonymous. (This statistic hasn't been examined.)

Discussion points

- A source at HST/JWST mentioned that there were certain fields that were male-dominated and these fields were more successful in getting time.
- Field-selection is an example of a bias that is hard to address with anonymity. (Note HST panels historically are less topic-specific than X-ray panels, so could be more not less vulnerable to this bias than in typical X-ray review.)

If women find (found) a safe space in certain subfields they might continue to be penalized for their history as influenced by the male-centric culture that excluded others from certain fields

Conclusion?

- Dual-anonymous reviews at NASA, Chandra, HST/JWST (STScI) are well-received by the reviewers.
- They may require a little extra work on the part of reviewers and proposers.
- Dual-anonymous benefits first-time proposers, and improve the credit earned by successful early-career scientists for their real intellectual contributions to the proposal : more bona-fide PIs (who do the work of assembling, leading the proposal and likely the work of analysis and writing the papers) are getting well-deserved credit for being PI as well. A PLUS
- Effect on gender-balance or intersectional issues (e.g. age & gender) not so clear.
- Dual anonymous is a tool but not an end-point to address the cultural biases our review systems might amplify.