



**STScI** | SPACE TELESCOPE  
SCIENCE INSTITUTE

EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

# HST TAC process & recent statistics

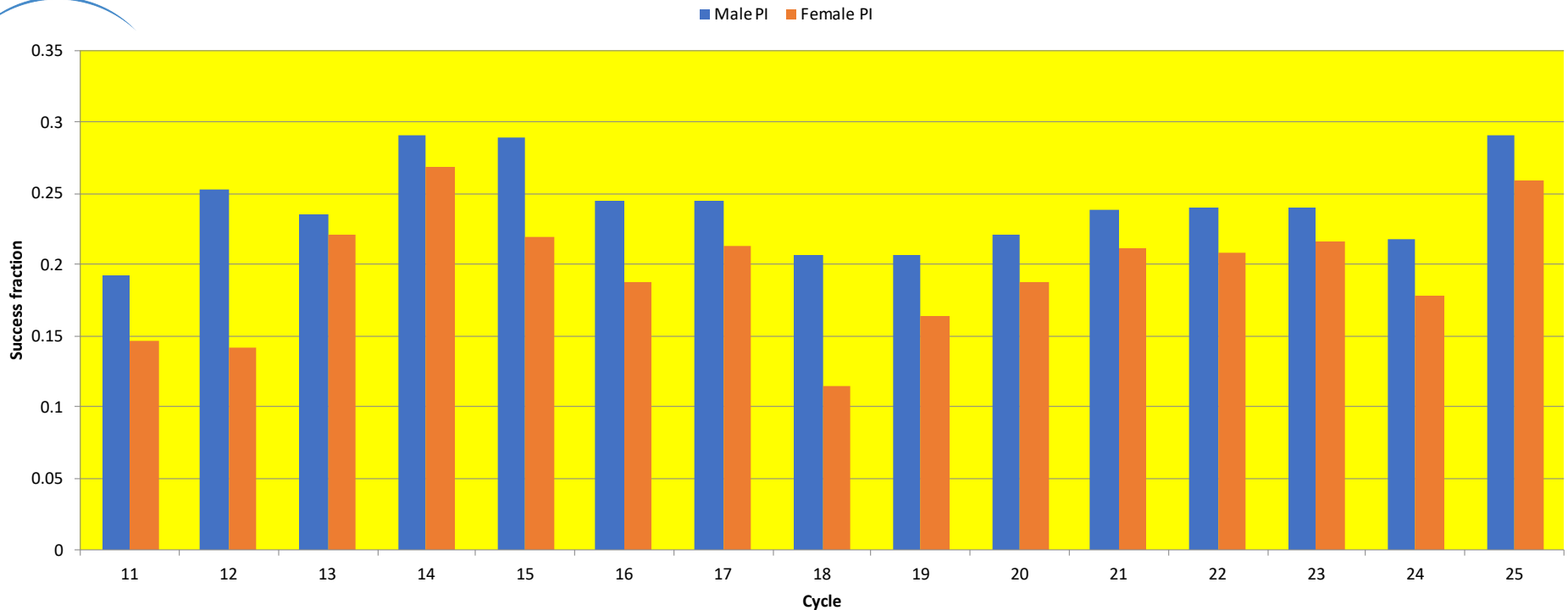
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July 17 2019



## PI gender and HST proposal selection statistics



- Clear systematic trend for HST proposals led by male PIs to have a higher success rate
- Comparable analyses since conducted by other facilities & agencies, including NOAO, Chandra, ALMA, & ESA
  - Some indications of similar systematics



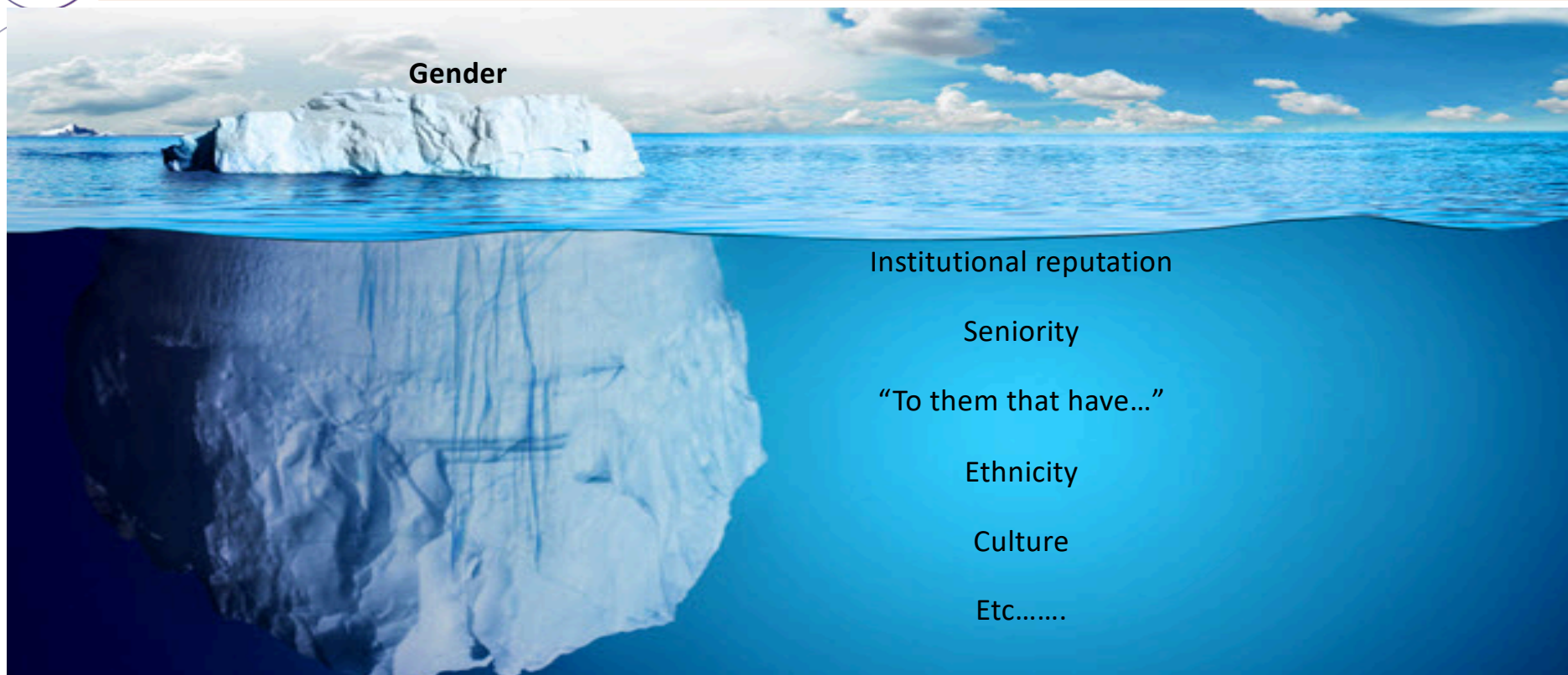
## HST Proposal Review Process: overview

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- Annual proposal review (most cycles)
  - Smaller proposals are distributed to topical panels
    - Solar System. Exoplanets & disks, stellar physics, stellar populations, galaxies & IGM, black holes & their hosts, cosmology
    - Typically 8 panel members + chair
    - STScI staff provide panel support
    - Larger proposals are reviewed by super-TAC comprised of TAC chair, panels chairs & at-large
  - Two-stage review process
    - Preliminary reviews prior to the meeting
      - 5-6 reviews per proposal → individual grades combined → ranked list
      - Proposals in lower 40% ruled out from discussion (but can be revived)
    - Remaining proposals are discussed and re-graded at face-to-face meeting
      - All un-conflicted panelists grade proposals → ranked list
      - Panels can adjust ranked list to allow for science balance
      - Final ranked list presented as a recommendation to the Director



## Bias is complex

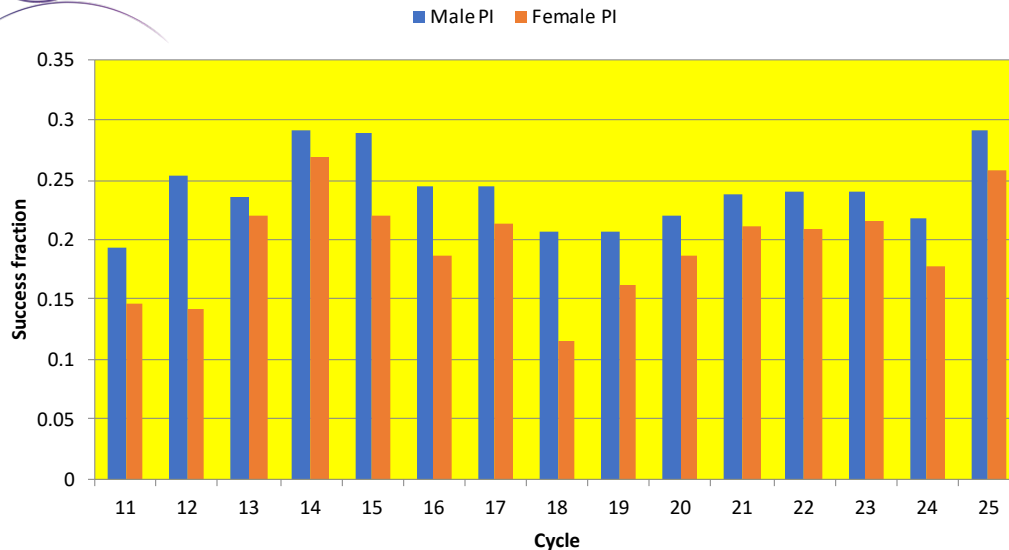


The gender-based offset is likely the tip of the iceberg – a measured effect that points to other inequities and biases that are harder to measure and quantify.





## PI gender and HST proposal selection statistics



HST proposal statistics show that proposals led by male PIs have had a consistently higher success rate than those led by female PIs through 15 cycles.

Proposal format has been adjusted to minimise PI information:

- Cycles 22/23: PI name removed from front page of proposal
- Cycle 24: initials replaced forenames
- Cycle 25: alphabetical listing

- Analysis by S. Johnson & J. Kirk:
  - Preliminary grades in Cycle 25 show no evidence for gender bias;
  - Almost 60% of the discussion in the Cycle 25 TAC panels focused on people, rather than projects
- Recommendation to Space Telescope Users Committee (October 2017):
  - Fully anonymise the proposal review
- Dual anonymous process implemented for HST Cycles 26 & 27



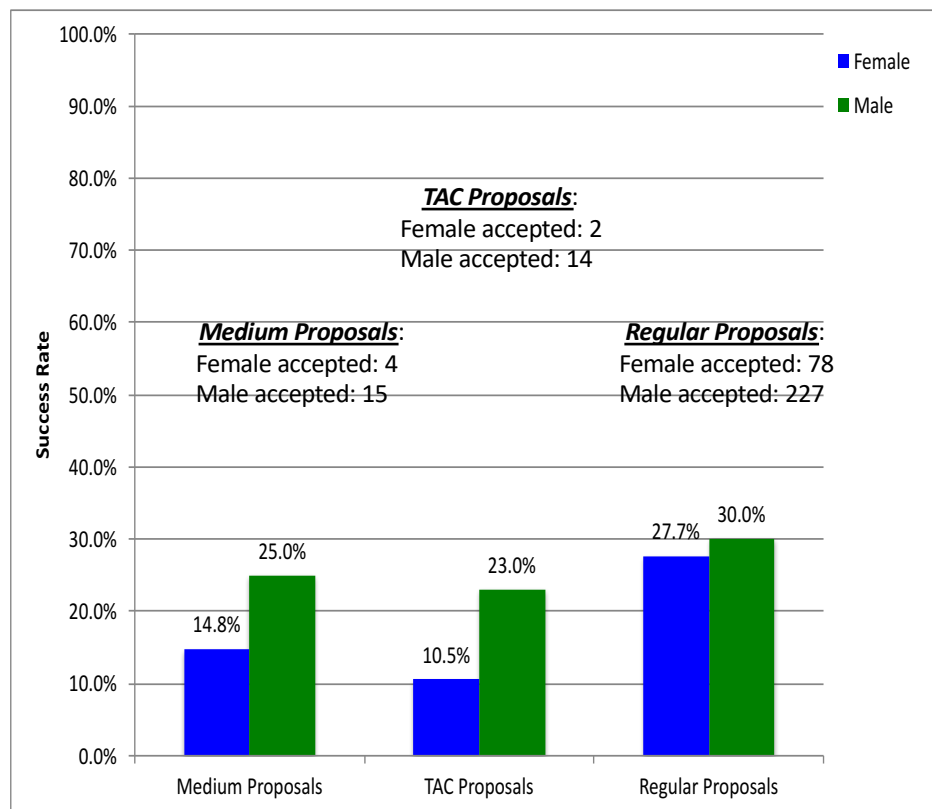
## Where are we now? Overall gender statistics: Cy 11-27





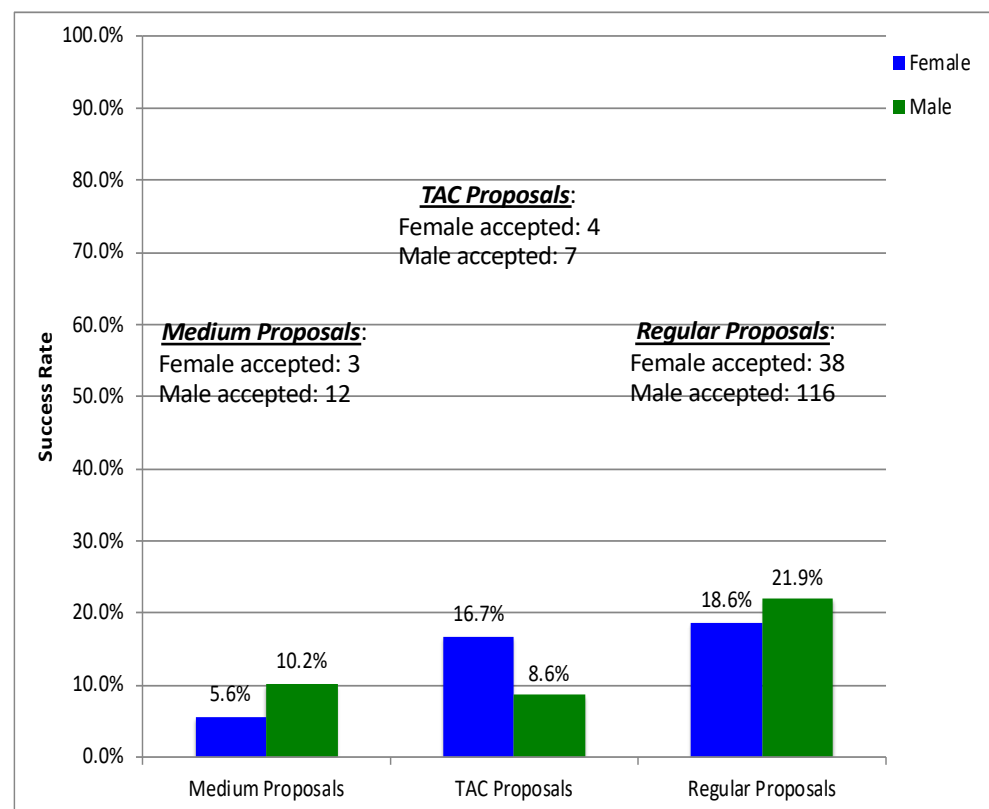
## Cycle 25

### Gender Success Rates



## Cycle 27

### Gender Success Rates





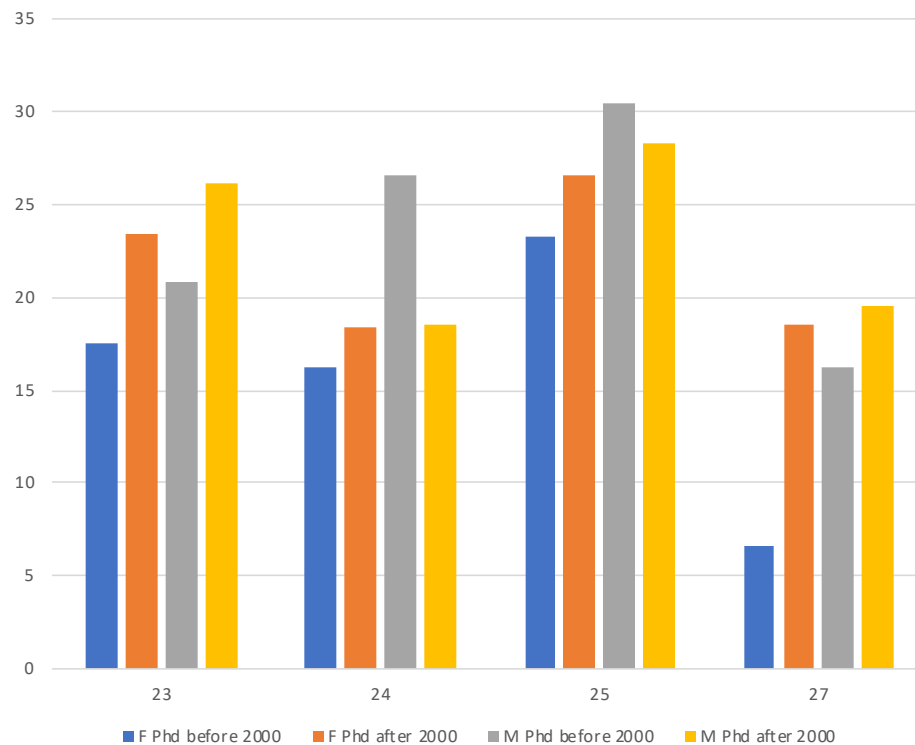
## Success by seniority

Cycle 23	F	M
Ph.d. up to 1999	17.6%	20.8%
Ph.d. from 2000	23.4%	26.2%

Cycle 24	F	M
Ph.d. up to 1999	16.2%	22.3%
Ph.d. from 2000	18.4%	21.4%

Cycle 25	F	M
Ph.d. up to 1999	23.3% 17/73	30.5% 103/337
Ph.d. from 2000	26.6% 68/266	28.3% 153/540

Cycle 27	F	M
Ph.d. up to 1999	6.6% 4/61	16.2% 41/250
Ph.d. since 2000	18.6% 41/221	19.6% 96/489

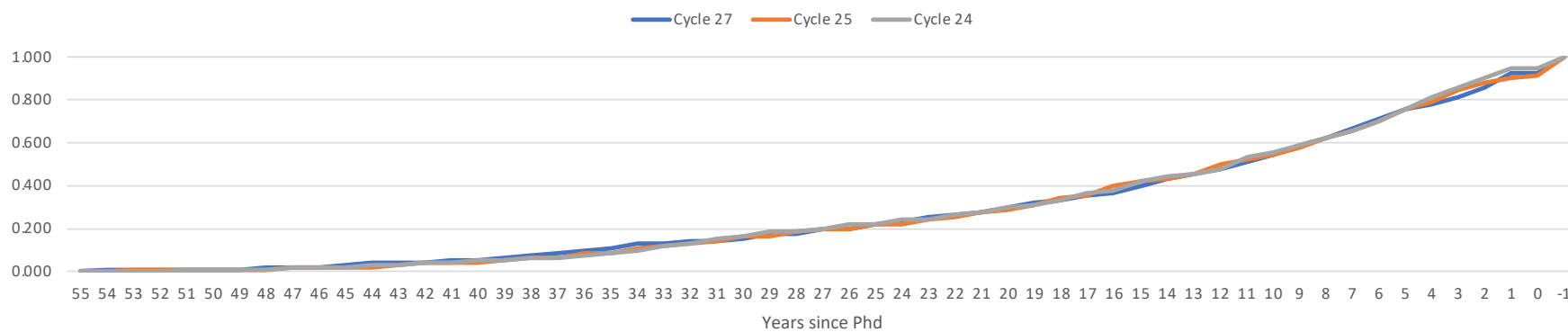




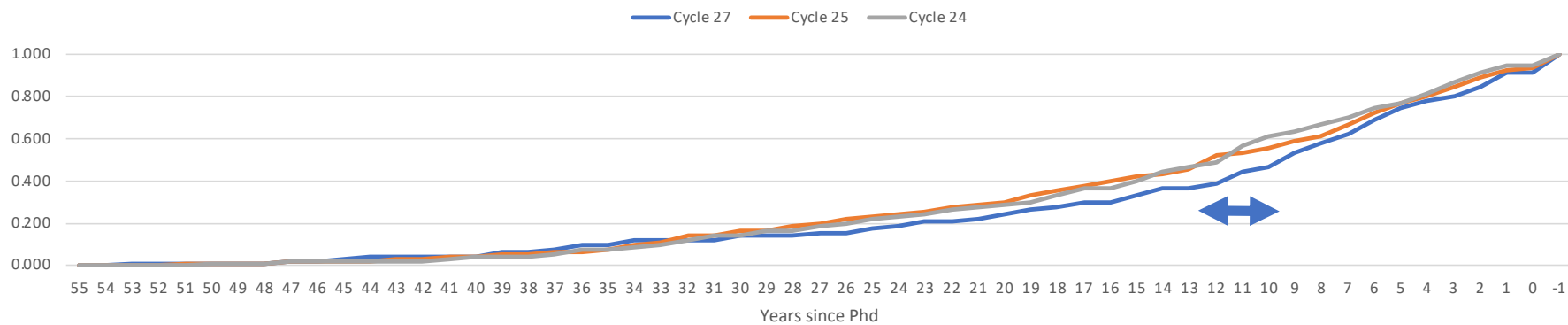


## PI Seniority

PI seniority: submitted proposals

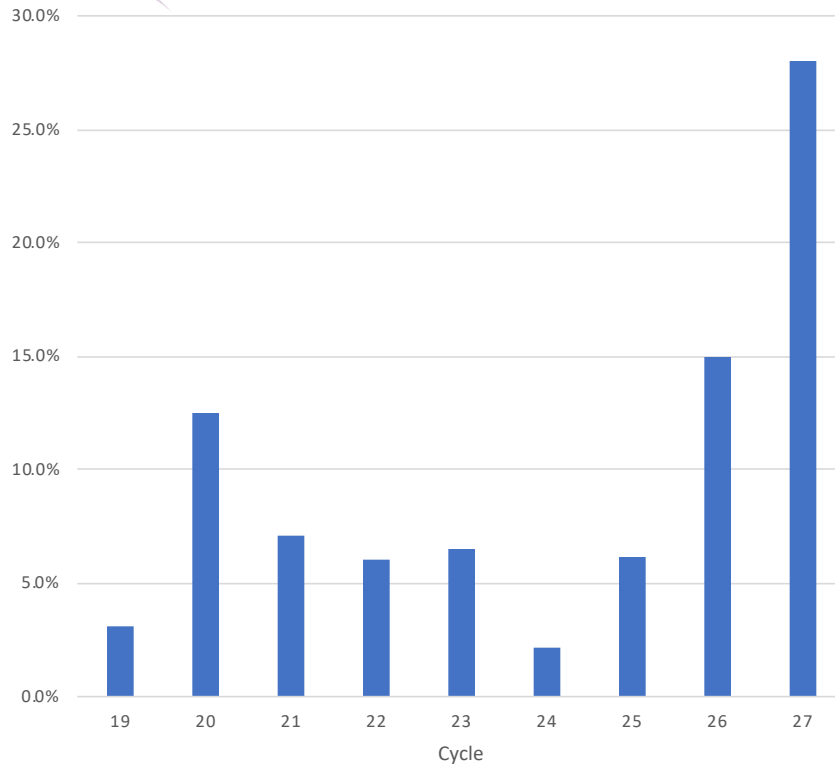


PI Seniority: accepted proposals





## New PIs by cycle – Cycles 19-27



Cycle	New PIs	Total accepted proposals	Fraction
27	51	182	28%
26	6	40	15%
25	21	340	6%
24	5	228	2%
23	17	261	7%
22	16	263	6%
21	18	253	7%
20	29	231	13%
19	6	196	3%



## Summary

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- HST proposal review involves a 2-stage process
  - Independent preliminary reviews
  - Face to face discussion of higher ranked proposals
- Statistics show a systematic trend with PI gender over many cycles
  - We sought expert external advice
  - We made a number of proposal format adjustments before moving to the dual anonymous review process
- Introducing dual anonymous proposal review is not a magic bullet
  - But the substantial increase in new (to HST) PIs is very interesting