



National Institute of
General Medical Sciences



INBRE Evaluation
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Evaluation of NIGMS IDeA Networks of Biomedical Research Excellence (INBRE) Program

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INBRE Evaluation

- Background on the IDeA / INBRE program
- Three key questions:
 - Has the INBRE program been effective in meeting its objectives?
 - Are the objectives of the INBRE program appropriate for its intended impacts?
 - Can certain areas of the program be optimized, improved, or strengthened?
- Working group recommendations

Institutional Development Award (IDeA) Program

- Congressionally mandated program to build research capacity in 23 states and Puerto Rico
- Authorized in 1993, launched at NCRR in 2000, moved to NIGMS in 2012 and consists of

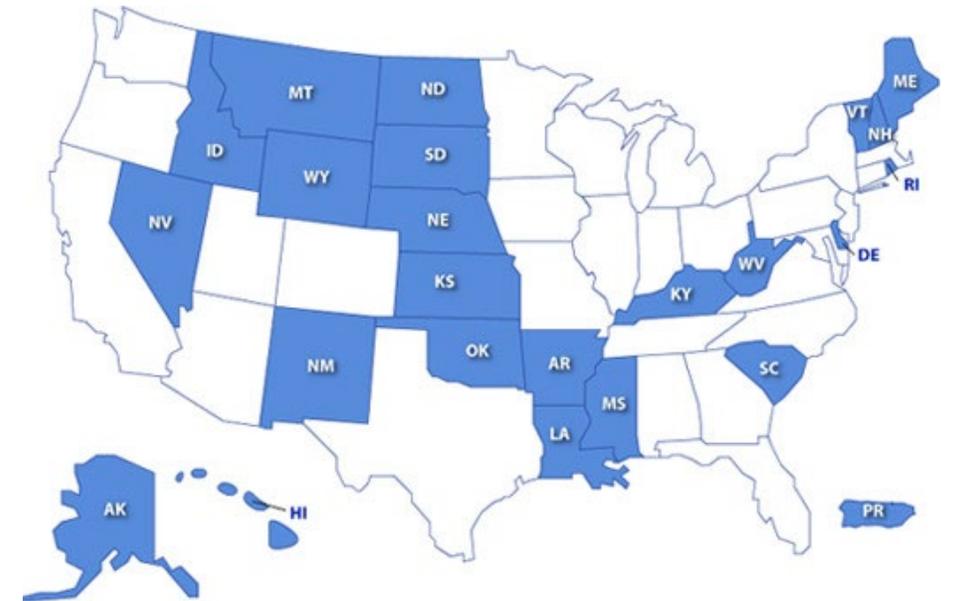
Centers of Biomedical Research Excellence (COBRE)

IDeA Clinical and Translational Research Networks (IDeA-CTR)

IDeA Co-Funding

IDeA Regional Entrepreneurship Development Program (I-RED)

IDeA Networks of Biomedical Research Excellence (INBRE)

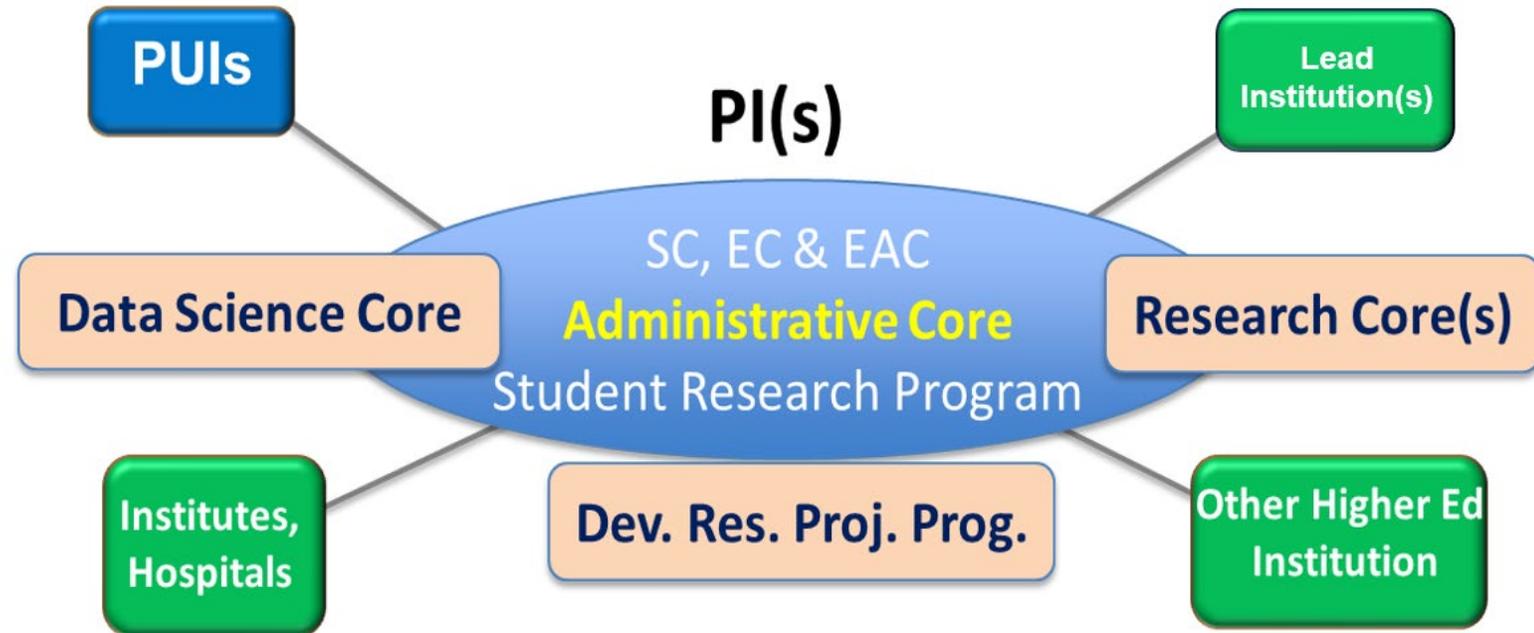


IDeA-Eligible States and Territories
("IDeA States")

IDeA Networks of Biomedical Research Excellence (INBRE)

- INBRE started as BRIN in 2001 and transitioned to INBRE in 2004.
- Three interrelated objectives:
 - **Infrastructure** development and enhancement
 - **Faculty** research and research mentoring
 - **Student** participation in research

Structure of the INBRE Program



Examples of INBRE Networks

INBRE networks can be highly variable depending on the unique circumstances of the state.

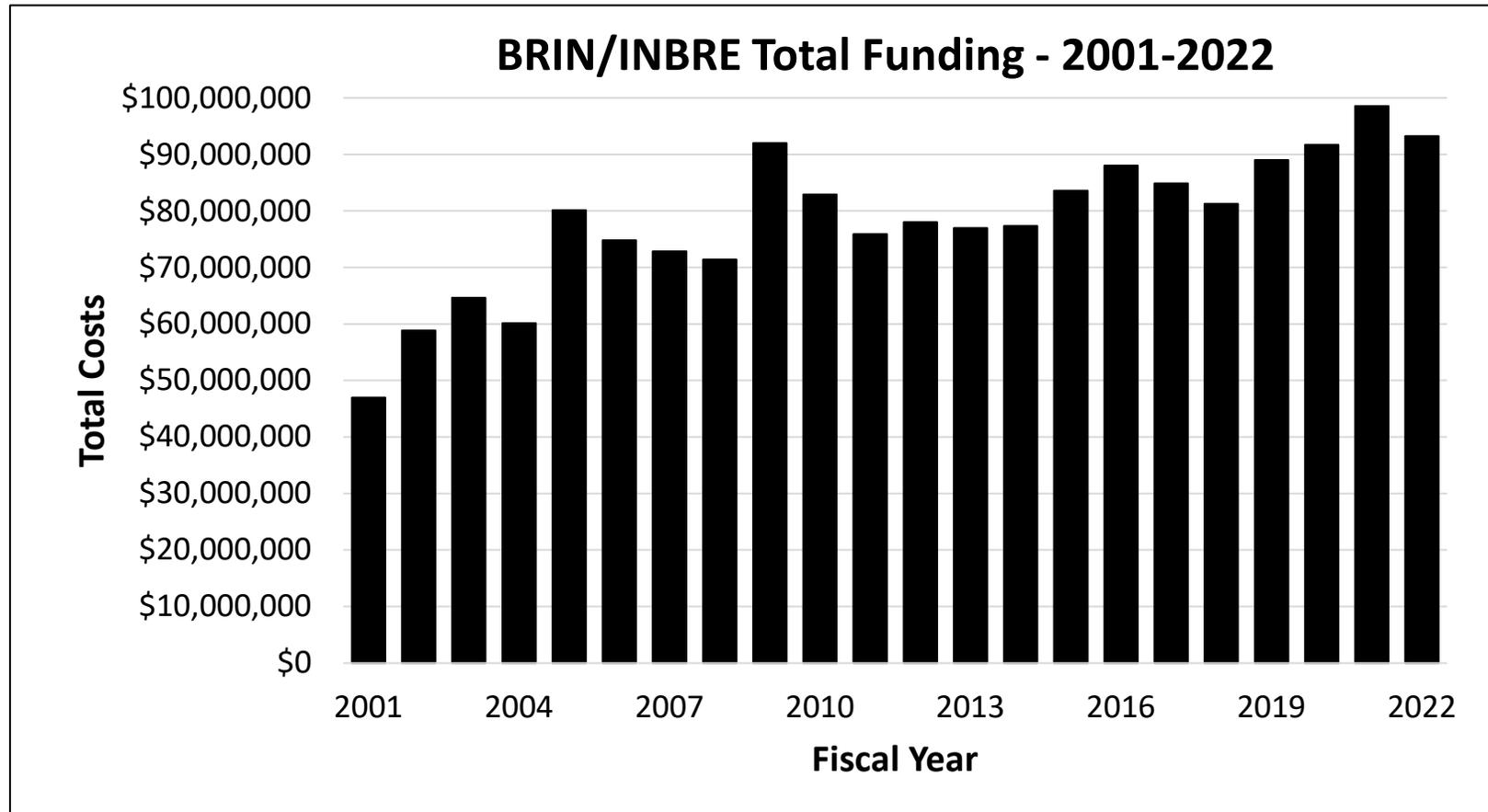


Kansas INBRE Network: 55 Members



**Wyoming INBRE Network: 9 Members
(*8 community colleges)**

INBRE Funding (Total Costs)



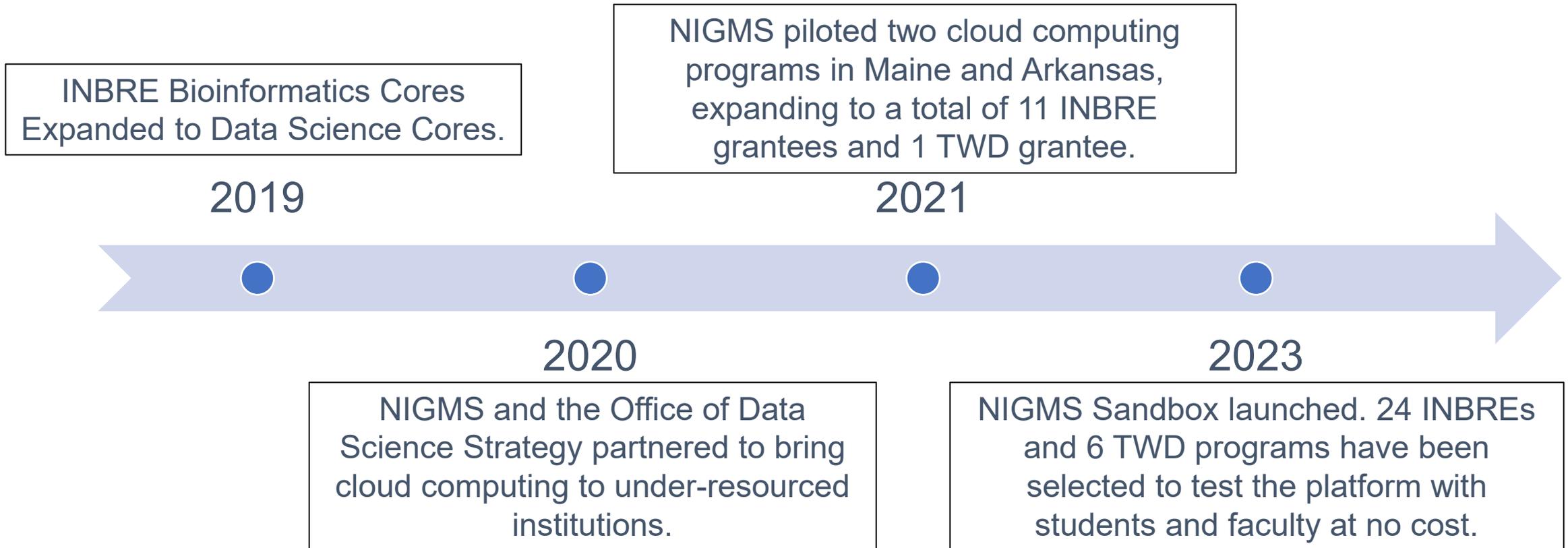
Three Primary INBRE Objectives

1. Developing a statewide research network and infrastructure
2. Developing faculty research expertise
3. Providing research opportunities for students

OBJECTIVE 1: Developing a Statewide Research Network And Infrastructure

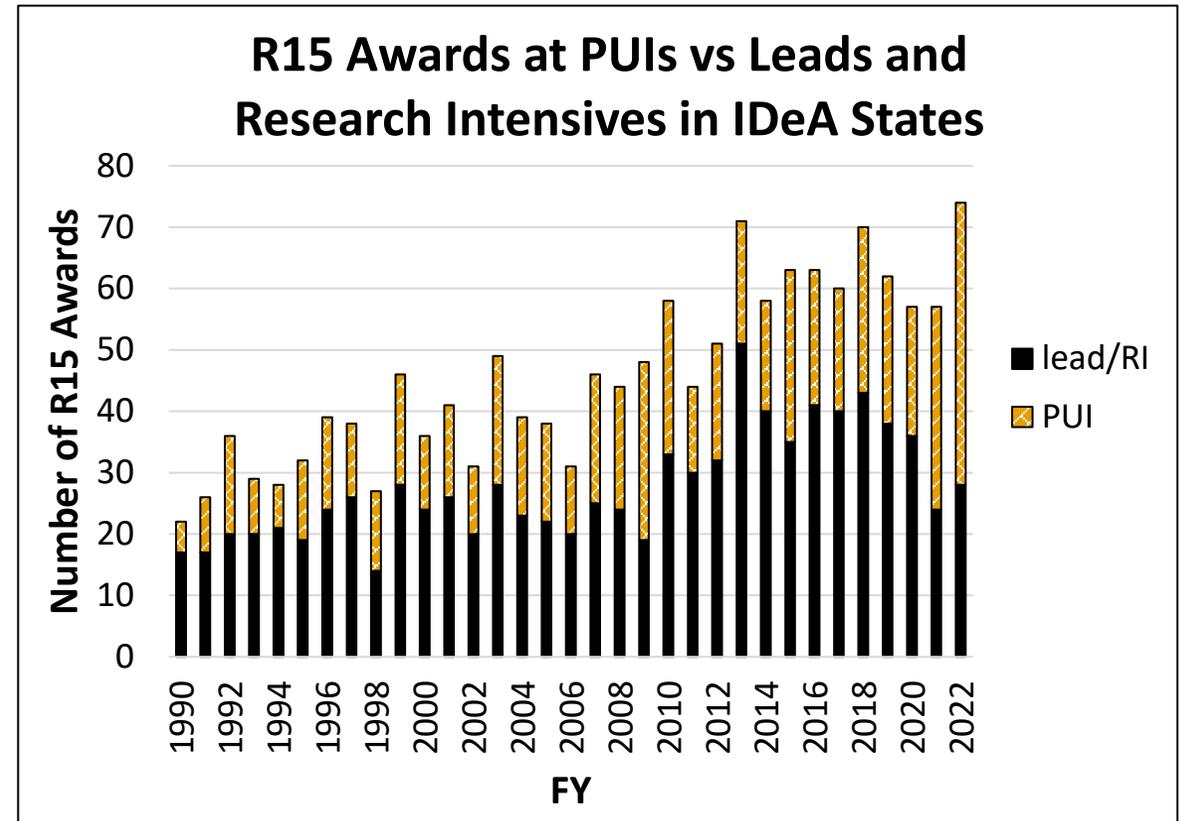
- INBRE role in Democratizing Cloud Computing for Biomedical Research and Training
- NIH Funding and collaborative grants
- Network membership and infrastructure

NIGMS Sandbox and INBRE Involvement



NIH Funding: R15 Awards

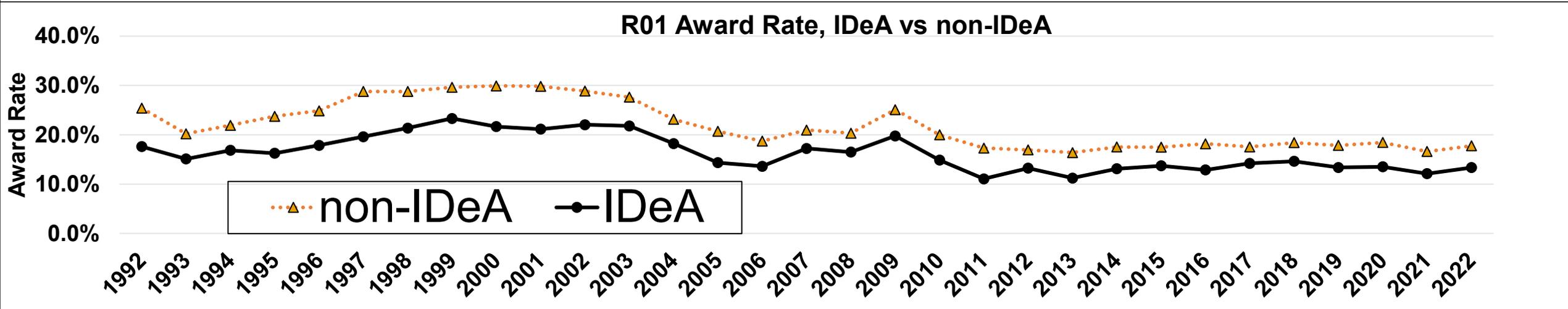
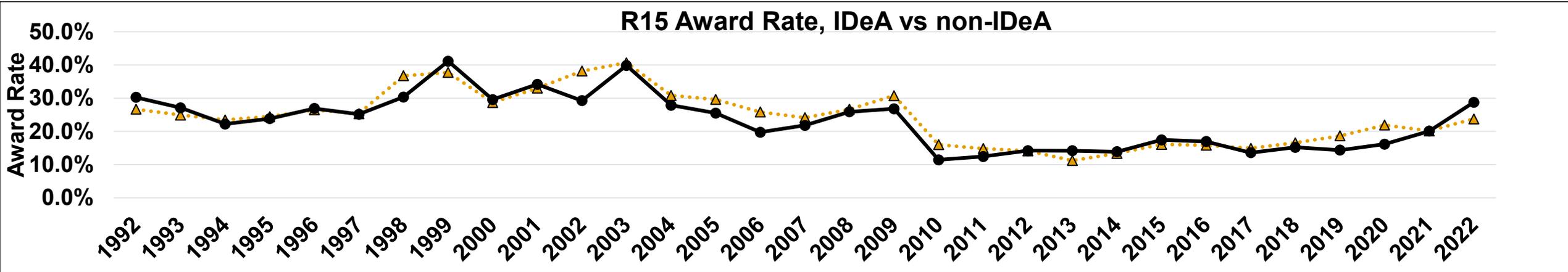
- The number of R15s awarded in IDeA States has increased since 2010.
 - Since 2017, 7 to 10 of these awards have been supported each year by IDeA co-funding.
- PUIs make up a larger share of R15 awardees over time.
- 24 IDeA State institutions received sufficient NIH funding to lose R15 eligibility since 2000.



NIH Funding: Award Rates

R15 award rates in IDeA states have usually been about the same as in non-IDeA states.

The R01 award rate gap narrowed from an average of 7.2% in 1992-2003 to an average of 4.7% thereafter.



Networks and Laboratory Space

- Institutions have stably had 3-7 partners per state per year – an increase in partnerships appeared from 2008 to 2010, and the INBRE network has had ~120 partners across the network since.
- Over half of HBCUs, HSIs TCCUs are participating in INBRE.
- Per NSF data from 2007 to 2021, IDeA state biological and biomedical laboratory space increased by 50%, while non-IDeA state space has grown by 40%. Non-IDeA states still have 5-6 times more space.

OBJECTIVE 2: Developing Faculty Research Expertise

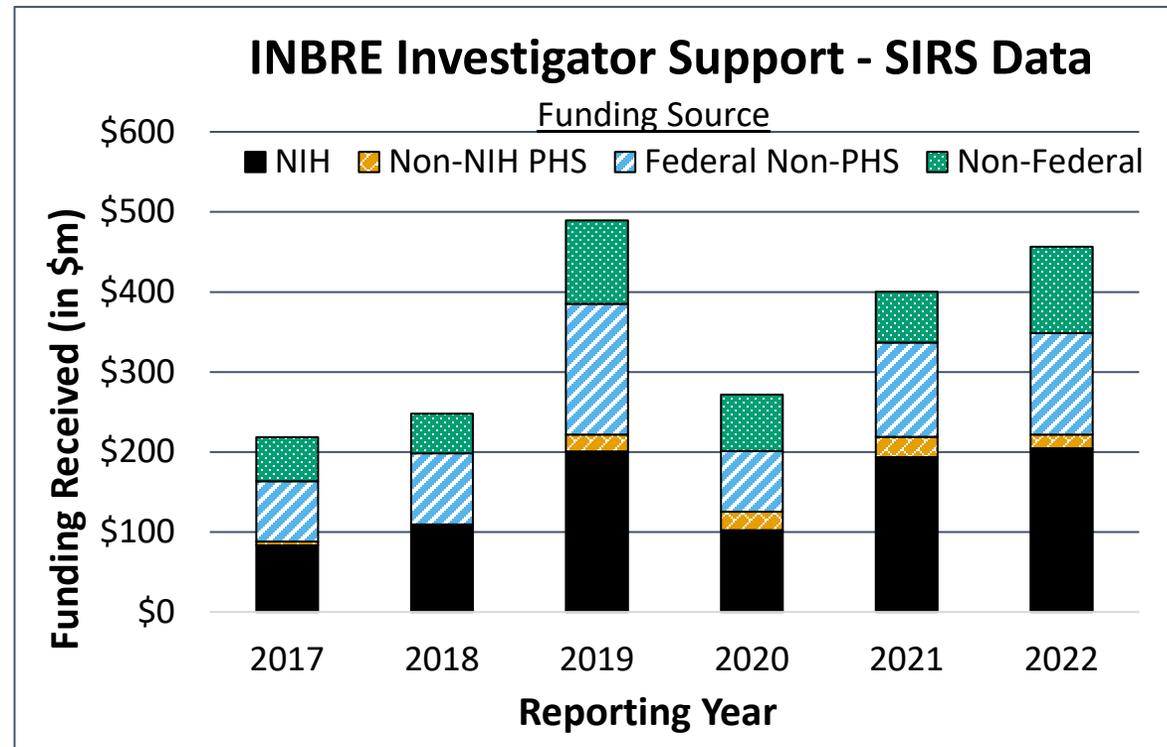
- Faculty engagement
- Efforts to support faculty development
- Grant portfolio of INBRE institutions
- Faculty Publications

Faculty Development

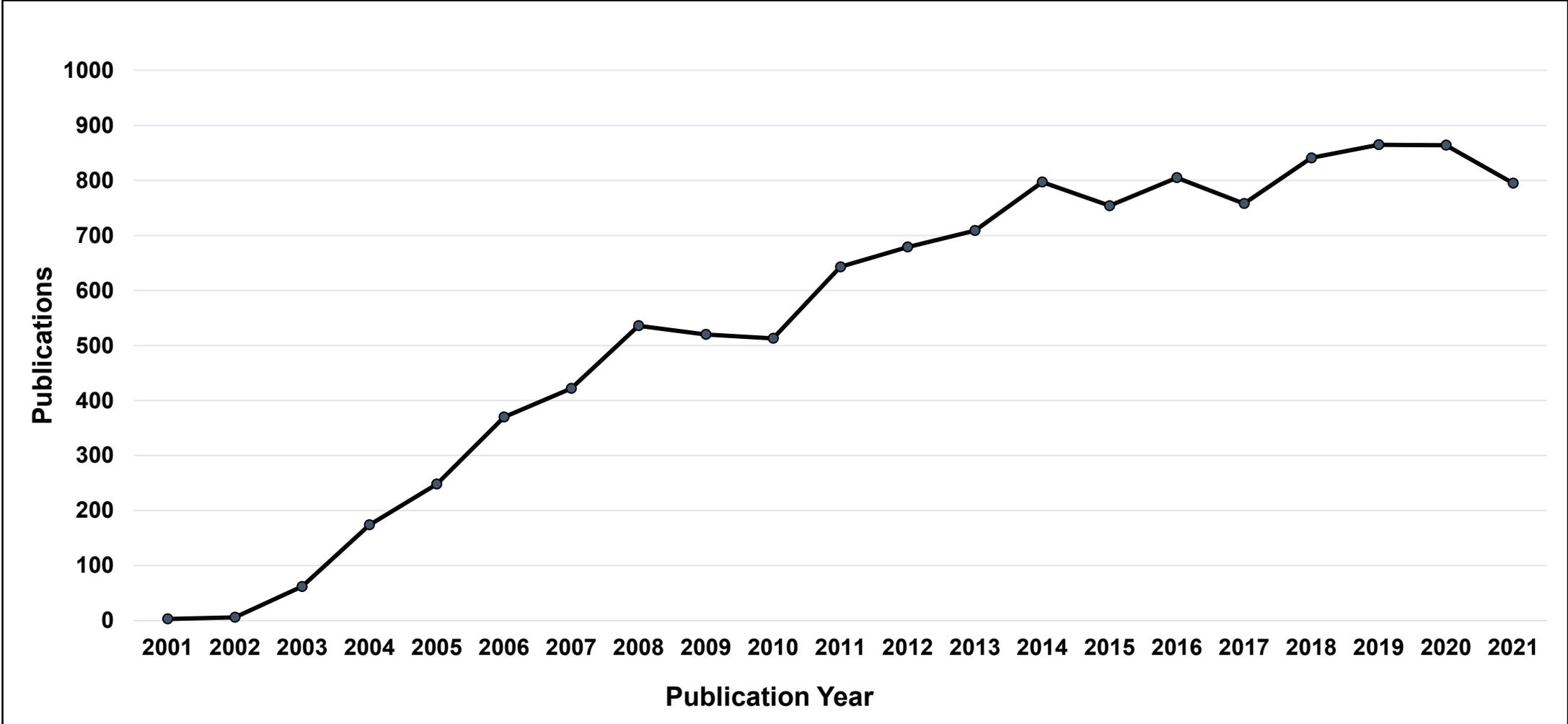
- SIRS data show a steady increase in unique faculty participating in research projects from 2017 (~400) to 2022 (~900).
- About 100 to 125 new “INBRE Faculty” are added annually totaling 1243 across the network).
- Most networks annually held
 - 1 – 2 annual statewide conferences
 - sent groups of faculty to 1 – 2 general audience conferences
 - offered 10 – 15 workshops

Faculty Research Applications and Awards

SIRS data shows federal sources comprise the majority of INBRE investigator support amounts, with NIH comprising nearly half of the support.



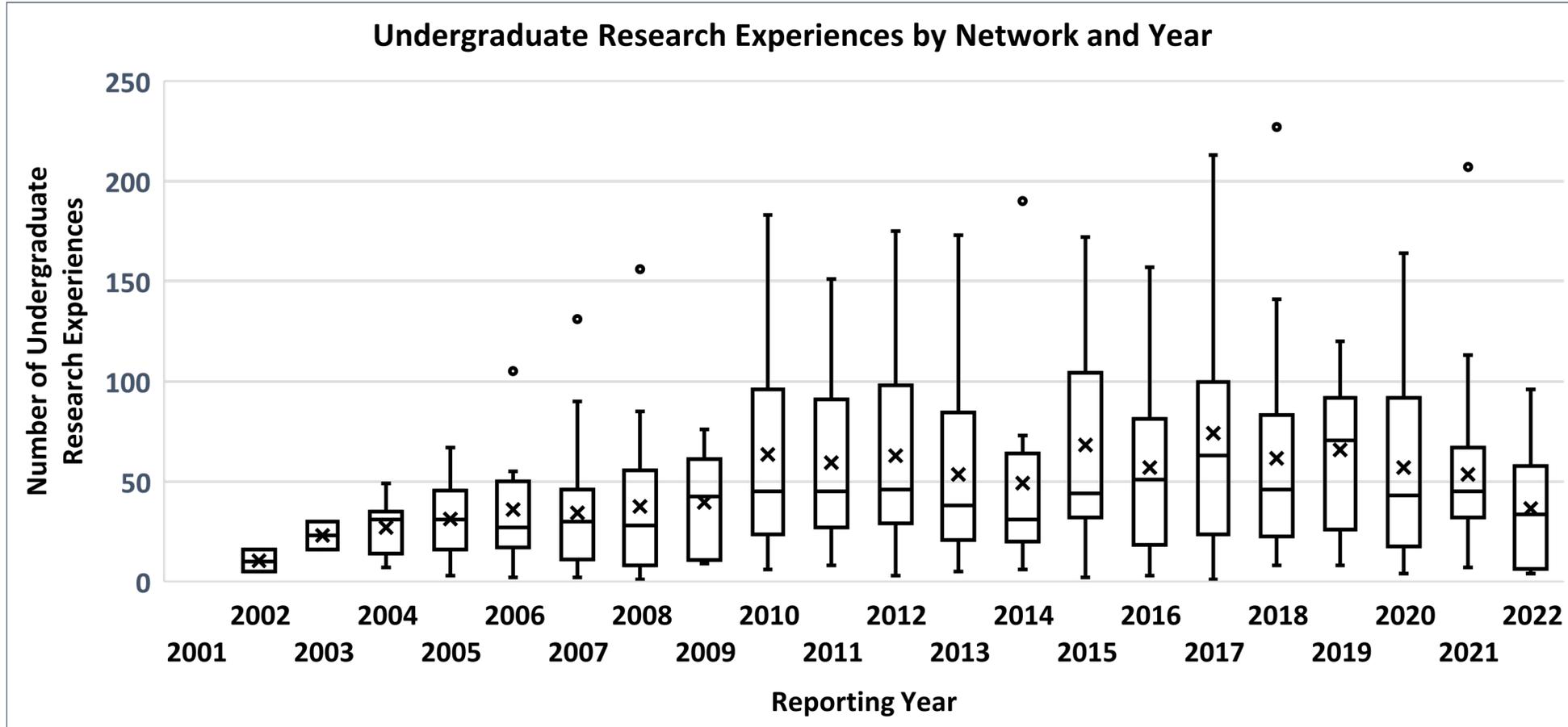
INBRE-Wide Faculty Publications



OBJECTIVE 3: Providing Research Opportunities For Students

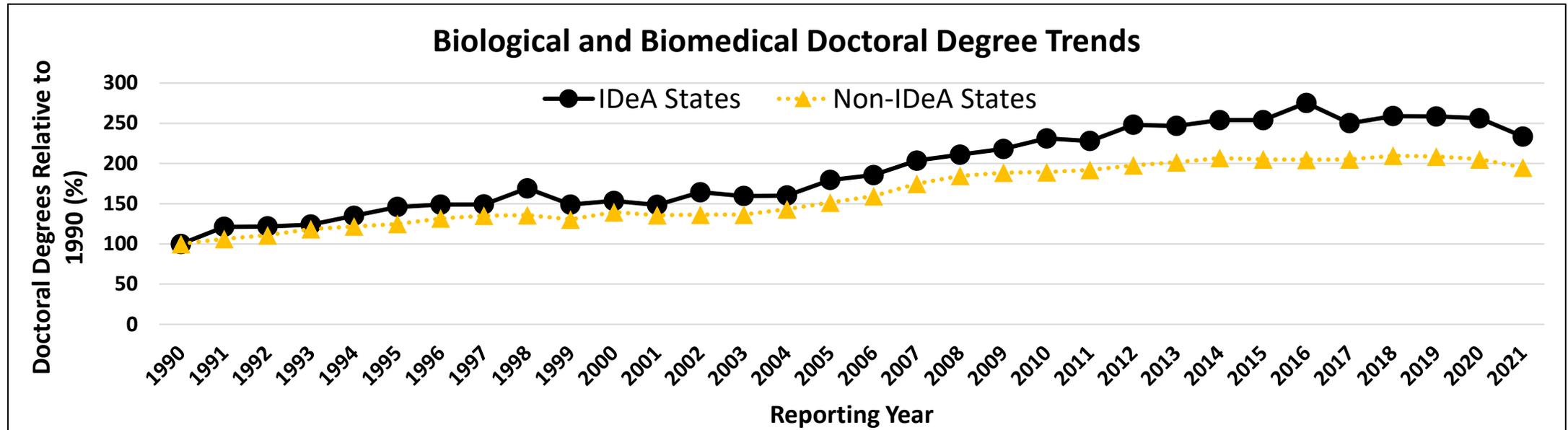
- Research experiences for students
- Impact on the biomedical workforce
- Efforts to support student development

Student Research Experiences



Programs offered ~160 student conferences, workshops, and seminars in 2022 with almost 4000 students participating.

Degrees Conferred



INBRE networks confer over 90% of the biological and biomedical Bachelor's degrees within IDeA states and over 99% of Master's degrees. Both have approximately doubled their number of annual Bachelor's degrees since 1997.

Non-IDeA states have increased number of doctorates conferred annually since 1990 195% while IDeA states have more than doubled (234%).

Findings

Has the INBRE program been effective in meeting its objectives? YES

- NIGMS' long-term commitment to supporting the INBREs is in large part responsible for the significant changes in institutional culture particularly at the PUIs, that have resulted in growth of biomedical research capacity within the 23 IDeA states and Puerto Rico.
- Some comparisons of state-by-state outcomes could be helpful, and more systematic information on what has or hasn't worked for each state could be beneficial to the entire network.

Are the objectives of the INBRE program appropriate for its intended impacts? YES

- The diversity of the states and institutions makes the flexibility of the program an asset and a factor in its success and should be maintained.

Recommendations

Can certain areas of the program be optimized, improved, or strengthened?

- There is great difficulty of assessing trend data from 2020-2022 due to COVID impacts, care should be taken in assessing this period in the future.
- Include the explicit goal of enhancing diversity in the biomedical workforce and collect data on metrics that will help examine progress toward that goal.
- The shift to virtual meetings has possibly affected engagement. States with geographic limitations could possibly benefit more from the shift to virtual meetings. The working group noted no systematic information on participation.
- While there currently is not sufficient data on teaching research-based courses, this is something that should be considered for the future.

Broader recommendations:

- Qualitative/anecdotal impact testimonials are important in understanding the ways INBRE has affected the research *culture* at partner institutions.

“INBRE provides a unique opportunity to its faculty at the college by supporting their participation in research. This would not occur without the support of INBRE”