Getting the Most from your R&D: Demystifying the Higher Education Research and Development (HERD) Reporting Process

28th Annual NSPAA Technical Assistance Workshop
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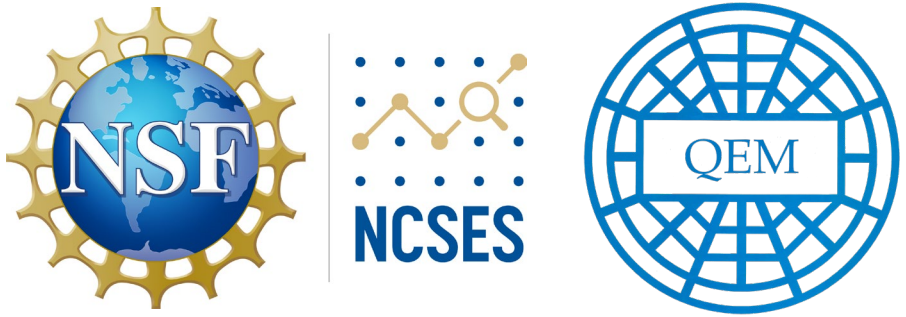

Quality Education for Minorities Land Acknowledgement

QEM starts with acknowledging we are located on the homelands of **Payaya, a band that belongs to the Tāp Pīlam Coahuiltecan Nation**. We recognize the people of the **not only the Payaya, but also Pacoa, Borrado, Pakawan, Paguame, Papanac, Hierbipiame, Xarame, Pajalat, and Tilijae Nations** who have lived and continue to live in the surrounding San Antonio area.

As academics, it is our responsibility to acknowledge the sovereignty and the traditional territories of these tribal nations, and the treaties that were used to remove these tribal nations, and the histories of dispossession that have allowed for the growth of our academic institution. Consistent with QEM's commitment to diversity, equity, inclusion, and belonging, we acknowledge the historical and current experiences of Native peoples as it helps inform the work we do.

Abstract

Less than 60% of all HBCUs participate in the annual reporting of the Higher Education Research and Development survey. This reporting helps to provide administrative leaders with peer and aspirational institution clusters for planning purposes. While there is a series of institutions who participate consistently, there is limited standardized training in how to complete institutional reporting, how to maximize reporting, and then how to use these data for longitudinal funding acquisition plans. This training will provide attendees with that opportunity.

Presentation Organization

20min - Polling Room

10min - Overview of the NSF HERD Reporting

15min - Discussion Activity- Reviewing a sample report

20min - Best Practices for completing report- Michael from agency perspective, Erin from institutional perspective

10min - How to Maximize Reporting

10min - Discussion Activity- How to use these data for longitudinal funding acquisition plans

Getting to Know One Another

Michael Gibbons, National Science Foundation

Erin Lynch, EdD, CRA, Quality Education for Minorities (QEM) Network

(1) Introduce yourself with your role and institution; and

(2) On a scale of 1 to 5 with 1-Vaguely Familiar and 5-Intimately Familiar, how familiar are you with National Science Foundation Higher Education Research and Development survey?

National Center for Science and Engineering Statistics

Measuring America's progress in science, technology, and innovation

Part of the National Science Foundation (NSF)

Located within the Directorate for Social, Behavioral, and Economic Sciences (SBE)

One of 13 principal federal statistical agencies

Overseen by the U.S. Chief Statistician within the White House Office of Management and Budget (OMB)

MISSION

Produce policy relevant, policy neutral **statistical information** on the **U.S. science and engineering enterprise**:

- Research and development
- Science and engineering workforce
- U.S. competitiveness in STEM
- STEM education in the United States
- https://ncses.nsf.gov

Overview of the NSF Higher Education Research and Development Survey

- Conducted annually since 1972
- Census all U.S. universities and colleges with minimum of $150,000 of separately accounted for R&D expenditures (N = 900 in FY 2022)
- Voluntary – response rate has consistently been over 95%
- Data used by universities, federal and state policymakers, other researchers
- HERD Survey publications page is https://nsf.gov/statistics/srvyherd

Overview of the NSF Higher Education Research and Development Survey

Types of data collected

- Expenditures funded by federal (by agency) and nonfederal (by sector) sources by R&D field
- Type of R&D expenditures (basic research, applied research, and experimental development)
- R&D spending passed through to subrecipients or received as a subrecipient
- Medical school and clinical trial R&D expenditures
- Foreign sources of funding
- Specific cost elements of R&D expenditures (salaries, software, equipment, indirect costs, etc.)
- Spending on R&D equipment by field
- Headcounts and FTEs of personnel paid from R&D accounts

HERD Survey Guidelines

R&D *includes:*

- Sponsored research (federal and nonfederal)
- University research (institutional funds that are separately budgeted for individual R&D projects)
- Startup, bridge, or seed funding provided to researchers within your institution
- Other departmental funds designated for research
- Graduate research assistantships
- Research training grants funding work on organized research projects
- Tuition assistance or remission provided to students working on research
- Recovered and unrecovered indirect costs
- Equipment purchased from R&D project accounts
- R&D funds passed through to a subrecipient organization or university

HERD Survey Guidelines

R&D does ***not*** include:

- Public service grants, outreach programs, or non-research training grants
- Student scholarships, tuition remissions, or waivers with no requirement for research activity
- Curriculum development (unless included as part of an overall research project)
- R&D conducted by university faculty or staff at outside institutions that is not accounted for in your financial records
- Estimates of the proportion of time budgeted for instruction that is spent on research
- Capital projects (i.e., construction or renovation of research facilities)
- Unrecovered indirect costs that exceed your institution's federally negotiated Facilities and Administrative (F&A) rate
- Research administration expenditures. These are considered indirect costs.

Discussion Activity- Reviewing a sample report

Rankings from NCSES Academic Institution Profiles												
Data year	Earned doctorates			Full-time graduate students			Total R&D expenditures			Research space		
	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked
2021	-	-	-	674	97.6	691	361	40.2	909	533	91.5	583
2020	-	-	-	682	97.9	697	396	43.8	915	-	-	-
2019	-	-	-	465	67.1	696	543	59.8	913	562	95.4	589
2018	-	-	-	690	98.9	698	570	63.0	910	-	-	-
2017	-	-	-	680	99.4	684	568	63.6	897	541	94.1	575
2016	-	-	-	678	97.3	697	586	65.8	895	-	-	-
2015	-	-	-	676	97.6	693	584	65.4	897	-	-	-
2014	-	-	-	659	95.8	688	740	83.6	887	-	-	-
2013	-	-	-	-	-	-	659	74.8	884	422	72	588
2012	-	-	-	-	-	-	536	60.4	892	-	-	-

School 1- Non-Research Oriented Minority Serving Institution
https://ncsesdata.nsf.gov/profiles/site?method=view&tin=U3683001

Search for specific institutions

School 2- Research Oriented Non-Minority Serving Institution
https://ncsesdata.nsf.gov/profiles/site?method=view&tin=U1300001

Rankings from NCSES Academic Institution Profiles												
Data year	Earned doctorates			Full-time graduate students			Total R&D expenditures			Research space		
	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked	Rank	Percentile	Institutions ranked
2021	16	4.3	448	34	5.7	691	10	2.0	909	17	3.7	583
2020	17	4.5	450	33	5.6	697	9	1.9	915	-	-	-
2019	9	2.8	447	31	5.3	696	9	1.9	913	18	3.9	589
2018	12	3.6	428	29	5.0	698	9	1.9	910	-	-	-
2017	13	3.8	425	29	5.1	684	9	1.9	897	16	3.6	575
2016	13	3.8	430	21	3.8	697	8	1.8	895	-	-	-
2015	12	3.6	426	21	3.9	693	10	2.0	897	15	3.4	570
2014	11	3.4	422	20	3.7	688	11	2.1	887	-	-	-
2013	13	3.9	417	14	3.3	555	7	1.7	884	14	3.2	588
2012	8	2.7	412	17	3.9	555	17	2.8	892	-	-	-

Discussion Activity- Reviewing a sample report

School 1- Non-Research Oriented Minority Serving Institution

School 2- Research Oriented Non-Minority Serving Institution

What does the report show us?

What areas of STEM R&D are strongest for institution?

What areas are those for growth?

Institution specific report-

HERD 3-Year Trend Report

Question 1. R&D Expenditures by Source of Funds, FY 2020-2022

Source of Funds	R&D Expenditures (Dollars in thousands)			
	Fiscal Year			% Change
	2022	2021	2020	2021-22
U.S. federal government	8,450	9,355	9,020	-10.7%
State and local government	6,300	4,637	3,576	26.4%
Business	412	455	604	-10.4%
Nonprofit organizations	3,555	3,245	3,108	8.7%
Institutional funds	-	-	-	-
1. Institutionally financed research	1,709	1,934	2,020	-13.2%
2. Cost sharing	309	334	390	-8.1%
3. Unrecovered indirect costs	500	498	520	0.4%
4. Total institutional funds	2,509	2,766	2,930	10.2%
All other sources	135	206	176	-52.6%
Total	21,361	20,664	19,414	3.3%

- Review data from your past three HERD surveys
- Trends display for all questions
- Ensure that trends accurately reflect changes at your institution
- View areas for possible improvements in future funding
- Reports also include the trend justifications you submitted in the past

Best Practices for Completing Report

(1) Understanding the guidelines of the reporting, (i.e.. knowing definitions, knowing what to code, etc.)

- -Understanding what counts as R&D and what doesn't
- -Understanding what the different types of research are (basic, applied, and experimental)
- -Understanding sources of funding
- -Understanding how personnel are categorized
- -Attend the respondent Webinar in October

(2) Using effective tagging of activities (i.e., institutional funds, external, etc.)

- -Clear coding of sponsored research activities
- -Checks and balances on coding of activities
- -Quarterly monitoring of activity and metrics

(3) Do not be afraid to ask questions, often and early

- -HERD survey support team and NCSES personnel are here to help
  - support@herdsurvey.org
  - mgibbons@nsf.gov
- -Ask your peers how they handle situations

Best Practices for Completing Report

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- R&D is not…public service/outreach exclusive grants, curriculum development, R&D by university faculty not accounted in your financial records, estimated instructional time spent on research, construction or renovation of facilities, non-research training grants, or unrecovered indirect costs.
- Basic research (2.25) Basic research is experimental or ***theoretical work undertaken primarily to acquire new knowledge*** of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- Applied research (2.29) Applied research is original investigation undertaken in order to acquire new knowledge. It is, however, ***directed primarily towards a specific, practical aim or objective.***
- Experimental development (2.32) Experimental development is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is ***directed to producing new products or processes or to improving existing products or processes***. (Frascati Manual, OCED)

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- Federal, State, Foundational, Institutional Subaward (knowing the Prime)
- Research Personnel

  Researchers: Professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. Include R&D managers in this category.

  Research Technicians: Persons whose main tasks require technical knowledge and experience in one or more fields of science or engineering, but who contribute to R&D by performing technical tasks such as computer programming, data analysis, ensuring accurate testing, operating lab equipment, and preparing and processing samples under the supervision of researchers.

  Research Support Staff: Not directly involved with the conduct of a research project but support the researchers and technicians. These employees might include clerical staff, financial and personnel administrators, report writers, patent agents, safety trainers, equipment specialists, and other related employees.
- ***Researcher versus R&D technician:*** Researchers contribute more to the creative aspects of R&D whereas technicians provide technical support. For example, a researcher would design an experiment, and a technician would run the experiment and assist in analyzing results.

Best Practices for Completing Report

(2) Using effective tagging of activities (i.e., institutional funds, external, etc.)
-Clear coding of sponsored research activities
-Checks and balances on coding of activities
-Quarterly monitoring of activity and metrics

Two approaches to coding---
Pre-code at the pre-award phase (or) code at the post-award phase

- code the agency
- code whether basic, applied, or experimental/clinical
- code the discipline (by department)
- Code federal, state, foundational, or collegiate subaward
- Code the number of personnel affiliated with project based on budget

Best Practices for Completing Report

(3) Do not be afraid to ask questions, often and early

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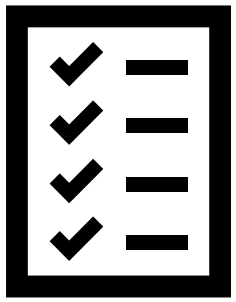
-Ask your peers how they handle situations

- Email, email, email…early and often when questions arise
- Have sponsored programs and reporting staff communicate with participating peer/aspirational peers

How to Maximize Reporting



(1) Using effective tagging of activities (i.e., institutional funds, external, etc.)

(2) Understanding the guidelines of the reporting, (i.e., knowing definitions, knowing what to code, etc.)

(3) Do not be afraid to ask questions, often and early.

(4) Manually review your data.

(5) Use your historical data (three-year report after logging in) and comparative peer data.

Q&A

This product has been reviewed for unauthorized disclosure **of confidential information** under NCSES-DRN24-006.