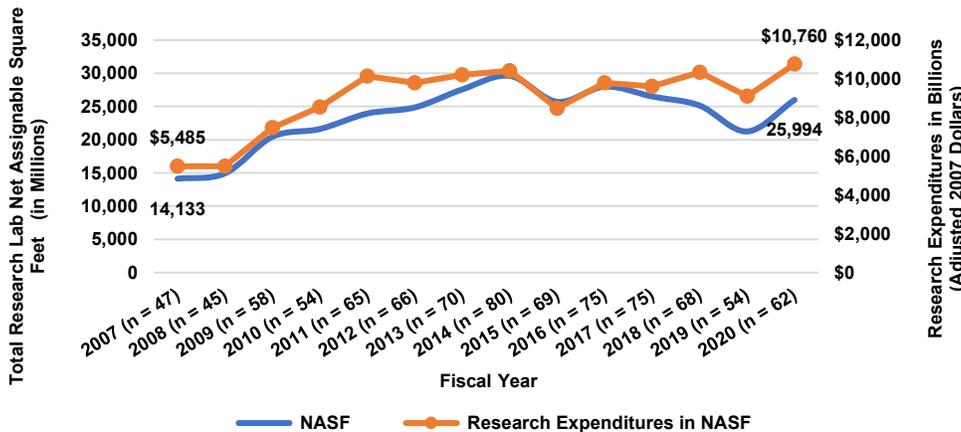


July 2022

## Research Lab Space Productivity at U.S. Medical Schools – Part 2: A Trends Report of Operations Management Survey Data, Fiscal Years 2007-2020

Understanding trends in research space utilization can assist institutions with establishing productivity benchmarks and guide them through the strategic management of space as it relates to their research expenditures. This Data Snapshot analyzes trends in research laboratory space within the context of research grants and contracts expenditures and numbers of principal investigators as reported on the Operations Management Survey.

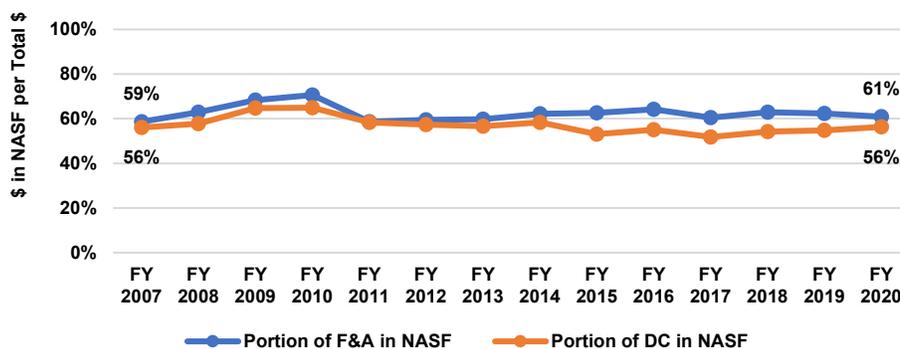
**Research Expenditures and Total Net Assignable Square Feet of Research Space**



### Key Takeaways: General Trends

- Grants and contracts (direct and facilities and administrative [F&A] cost expenditures in constant 2007 dollars)\* associated with activities that took place in non-class research laboratory space increased 90% between fiscal year (FY) 2007 and FY 2014 and 3% between FY 2014 and FY 2020.
- Net Assignable Square Feet (NASF) of non-class research space increased 110% between FY 2007 and FY 2014 and decreased 12% between FY 2014 and FY 2020.
- During this 14-year period, on average 63% of total F&A costs and 58% of total direct cost (DC) expenditures were associated with activities that took place in the research laboratory space.

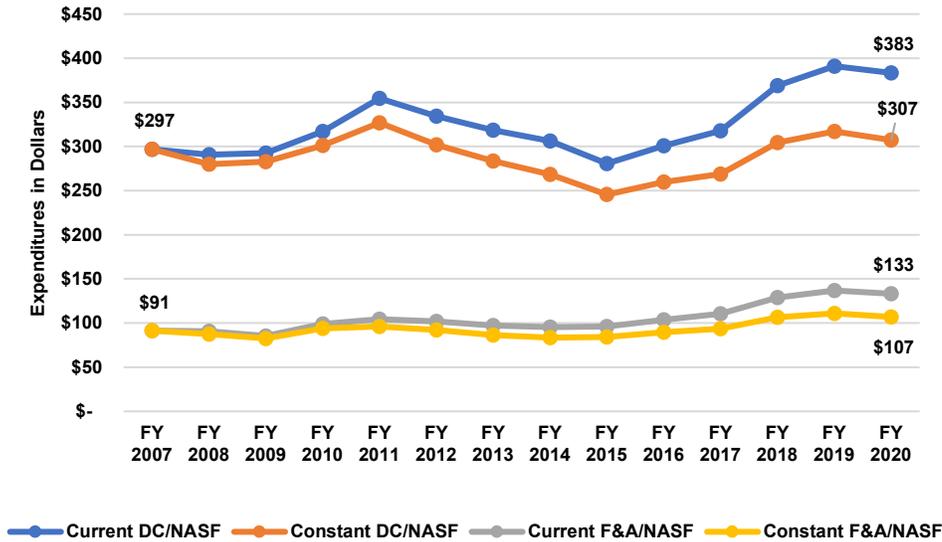
**Research Expenditures in Net Assignable Square Feet per Total Expenditures**



Source: All data for this snapshot were obtained from the Operations Management Survey, FY 2007-2020. FY 2007 was the first year NASF data was collected. Note: Medical schools without reported values or that reported zeros for a given year in any field (e.g., direct cost and indirect/F&A cost expenditures) were excluded from analysis for that particular year.

\*Where referenced, expenditures were converted to 2007 constant dollars using the U.S. Bureau of Labor Statistics CPI-Urban<sup>1</sup> for years 2007-2020.

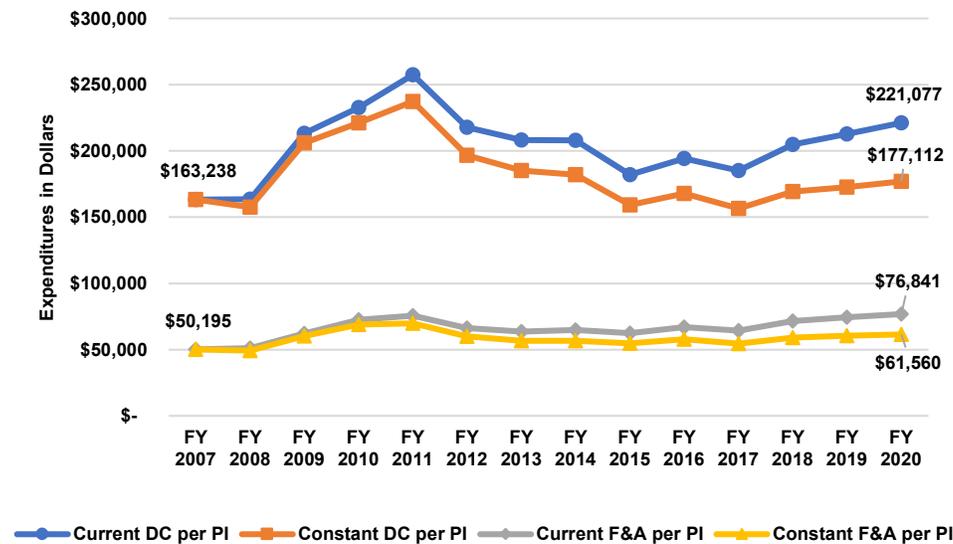
**Research Productivity as Measured by Expenditures per Net Assignable Square Feet**



## Key Takeaways: Productivity

- Research lab space productivity measured in constant DC dollars increased 3% overall, and constant F&A dollars increased 17% overall between FY 2007 and FY 2020.

**Research Productivity as Measured by Expenditures per Principal Investigator**

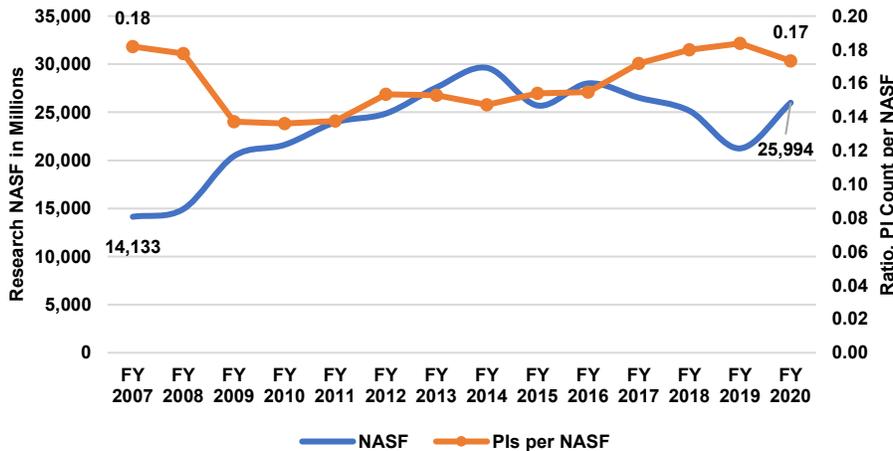


- While average DC and F&A dollars per principal investigator (PI) increased overall between FY 2007 and FY 2020 (8% and 23% respectively, in constant 2007 dollars), productivity per PI remained at or below 2011 levels in both adjusted and unadjusted dollars.

# AAMC Data Snapshot



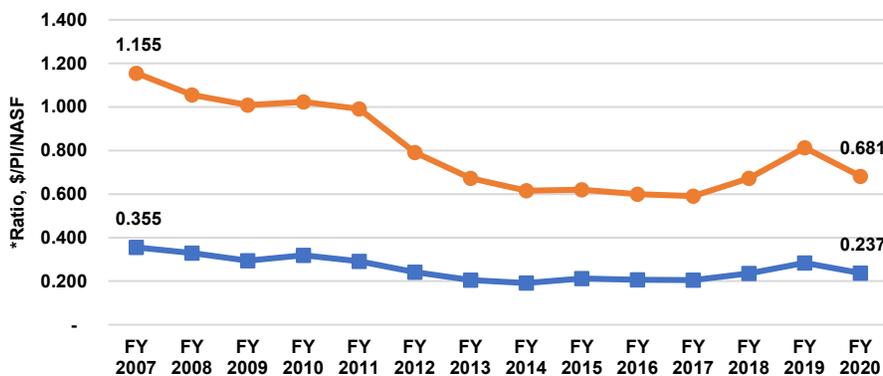
**Productivity as Measured by Principal Investigators per Net Assignable Square Feet**



## Key Takeaways: Productivity

- Overall, the average number of PIs per research NASF (PI count divided by total research NASF) declined 5% between FY 2007 and FY 2020.
- However, between FY 2009 and FY 2020, PIs per NASF increased 26%, suggesting that there was an increasing number of PIs sharing less research NASF during this period.
- As total research NASF declined 12% between FY 2014 and FY 2020, PI counts increased a modest 1% in average year-over-year growth and increased 3% overall from FY 2014 to FY 2020.
- Looking at the average research productivity of PIs and research NASF in one combined metric by the amount of dollars generated, with a higher number indicating higher productivity, constant DC dollars declined 41% overall from FY 2007 to FY 2020, and constant F&A dollars declined 33% overall from FY 2007 to FY 2020.

**Productivity as Measured by Expenditures per Principal Investigator and Net Assignable Square Feet**



\*Ratio was multiplied by 100      DC/PI/NASF      F&A/PI/NASF

## Conclusion

Research laboratory space is a limiting resource and its use, management, and ultimately productivity is paramount to the success of a U.S. medical school’s research mission. That said, the successful conduct of research and the availability of adequate space to support it are largely dependent on the availability of federal funds. The trends visible above are likely reflective of this fact. After a period of growth (in dollars, space, and PIs) through 2011 due to the stimulus provided by the 2009 American Recovery and Reinvestment Act, there remained a consistent, though modest, growth in the number of PIs applying for fewer dollars (due to slimmer federal research budgets) and a diminishing amount of space, leading to an overall decline in productivity. Continued monitoring of these data appears warranted given the declining productivity trends.

For more information, contact Alexander Geboy ([ageboy@aamc.org](mailto:ageboy@aamc.org)).

## References

1. U.S. Department of Labor, Bureau of Labor Statistics. Consumer Price Index for 2011-2020. <https://www.bls.gov/data/>. Accessed Feb. 1, 2022.

## Appendix

### Definitions used in the Operations Management Survey

**Research/non-class laboratory:** A space used for laboratory experimentation, research, or training in research methods; professional research and observation; or structured creative activity within a specific program or for sponsored research (whether sponsored with federal, state, private, or institutional funds).

**Principal investigator count:** The number of principal investigators associated with expenditures reported in the LCME Annual Financial Questionnaire (AFQ) associated with activities that took place in the non-class research laboratory space.

The number of principal investigators (headcount) associated with recorded and not recorded sponsored programs expenditures.

**Estimated direct cost expenditures:** The portion of a grant, cooperative agreement, or contract related to salaries, stipends, travel, specific equipment, and supplies recorded in medical school accounts (i.e., the amount reported on the AFQ) associated with activities that took place in non-class research laboratory space.

**Estimated portion of facilities and administrative (F&A) cost expenditures:** These include expenses that cannot be attributed to a specific research project, but which are necessary for the conduct of research (a subset of expenditures reported on the AFQ) that are associated with activities that took place in non-class research laboratory space.

### Additional Metrics

**Expenditures per PIs per NASF** – This productivity metric was calculated by dividing expenditures (both DC and F&A) by PIs and NASF. It shows the average expenditures associated with one principal investigator in one square foot of research space. A higher number suggests a higher dollar amount generated per PI per a single square foot of research space.