



THE PHD PATHWAY IN NURSING

SUSTAINING THE SCIENCE DISCUSSION QUESTIONS

Identified action steps were included in the PhD Pathway report on page 7. The first two actions are underway at AACN. To frame the conversation, the remaining two action items need further discussion:

- 1) What data points are needed to fully diagnosis the decline in PhD enrollments?
- 2) Who are additional stakeholders that should be included in future conversations to support the discipline's science and its future sustainability?



American Association
of Colleges of Nursing
The Voice of Academic Nursing

THE PHD PATHWAY IN NURSING

SUSTAINING THE SCIENCE

Summary of the August 22, 2018 invitational discussion hosted in collaboration with the National Institute of Nursing Research, National Institutes of Health

"Research is formalized curiosity. It is poking and prying with a purpose." -Zora Neale Hurston



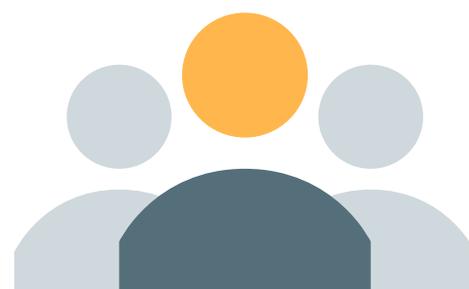
FRAMING THE DIALOGUE

The goal of this dialogue was to analyze contributing factors surrounding the recent decrease in enrollment in research-focused doctoral degree programs, and to identify steps for strategic action that will bolster interest in PhD programs— ultimately sustaining and elevating the discipline's science.



23 PARTICIPANTS

- National Institute of Nursing Research (NINR) leadership
- AACN leadership and staff
- Invited guests, representing research-intensive, public, and private institutions, including an historically black college and university (HBCU).



AGENDA

- Consider the data
- Share lived experiences
- Explore current strategies
- Propose action steps



“Humanity’s deepest desire for knowledge is justification enough for our continuing quest. And our goal is nothing less than a complete description of the universe we live in.” -Stephen Hawking

CONSIDERING THE DATA



ADDRESSING THE TREND

Following a six-year increase in PhD enrollments, a downward trend began in 2014, marking a 9.6% decline. (See Appendix A for more details on the data highlighted in this section).

OVERVIEW

The number of PhD students from underrepresented groups* in nursing has increased from 1,256 in 2008 to 1,953 in 2017 (a 55% increase). In contrast, the number of white PhD students has decreased from 2,719 in 2008 to 2,679 in 2017 (a 1.5% decline).

In the last 10 years, the number of male students enrolled in PhD nursing programs has increased steadily, from 284 in 2008 to 498 in 2017, an overall increase of 75%. However, the number of male students dropped by 10% between 2016 and 2017. By comparison, female enrollments in PhD nursing programs increased by 27% between 2008 and 2013. Between 2013 and 2017, however, the number of females enrolled in PhD nursing programs decreased by 12%, dropping from 4,677 in 2013 to 4,126 in 2017.

As it relates to NINR-supported research, there has been a downward trend in the number of F31 applications since 2014, from 73 applications in FY 2014 to 54 in FY 2017, with the current success rate for F31 applications to NINR at 41%. Examining the data across the NIH, there has been an overall decline in the success rate of F31s since its peak of nearly 60% in FY 2001 to 26% in FY 2017. This is in contrast to the number of F31 applications to NIH, which continues to rise. At the same time, the number of T32 slots remains stable and, in the last two years, institutions with NINR T32s have been able to fill all of their requested pre-doctoral positions.

*Underrepresented groups include the following categories: American Indian or Alaskan Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, two or more races, non-U.S. resident, and race/ethnicity unknown or not reported.

Data source: American Association of Colleges of Nursing, Research and Data Services, 2018 & National Institutes of Health (2018). Retrieved from <https://report.nih.gov/NIHDatabook/Charts/Default.aspx?showm=Y&chartId=61&catId=17>



SHARING LIVED EXPERIENCES



CREATING PATHWAYS

Attendees shared experiences that have proven successful in recruiting and retaining PhD students and also offered the challenges of running a program that can be sustained for the future.

ON THE GROUND

As PhD faculty continue to age (current average age is 56*), the next generation of nurse scientists is a national concern for the academic, research, and practice community. Participants heard from Julie Fairman, PhD, RN, FAAN, co-director of the Robert Wood Johnson Foundation's Future of Nursing Scholars Program. The goals of the program are to create a large and diverse cadre of PhD-prepared nurses; to develop a model that supports a three-year PhD program; and to shift the paradigm in PhD education. Reports from the scholars indicate that the program allows for greater socialization, mentorship, and resources.

Marion Broome, PhD, RN, FAAN, Dean and Ruby F. Wilson Professor of Nursing at Duke University, spoke to the importance of the curriculum and the trends in research related to big data and data science. Currently, few students are taught to work with big data; instead, nurses rely on other health professionals to gather information. Creating an interprofessional research team and shaping the culture of interprofessionalism is essential to moving forward. Critical questions must be answered regarding the individual's success in research-intensive academic roles, sustainability of internal and external funding streams, and the ramifications if the numbers continue to decline.**

Additionally, Hilda Williamson, EdD, RN, FNP, Assistant Dean and Associate Professor at Hampton University, shared that HBCUs are especially susceptible to funding issues as it relates to retaining PhD students. Students are often attracted to a PhD program to complete research due to a particular professor's portfolio. However, these students want shorter, more accessible programs with a face-to-face component that facilitates mentorships, which can be difficult to deploy, and ultimately retain students at HBCUs.

*Data source: American Association of Colleges of Nursing, Research and Data Services, 2018.

**Broome & Fairman. (2018). Changing the Conversation about Doctoral Education in Nursing. *Nursing Outlook*.



EXPLORE CURRENT STRATEGIES



THE RESEARCH LANDSCAPE

*It is not only the nursing profession that is seeing a decline in science careers. It is well documented that the biomedical workforce is aging and at a rate that does not match the American labor force. Attendees considered the following recommendations and challenges presented by the **April 2018 Consensus Study Report from the National Academies of Science, Engineering, and Medicine on the Next Generation of Biomedical and Behavioral Science Researchers**.*

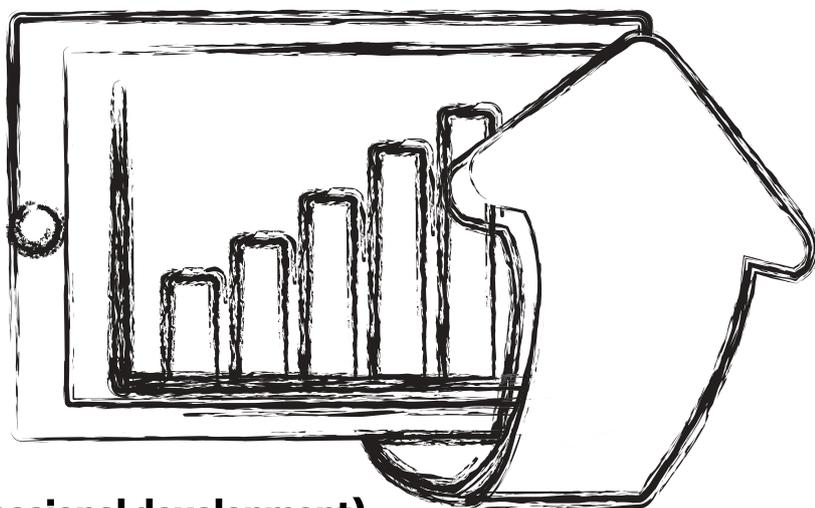
The National Academies report notes the prevailing challenges to grow the pipeline of scientists. It prominently highlights the length of time to secure a grant and establish an independent research program. For example, the average age of a first-time recipient of a RO1 grant is up, from 36 years in 1980 to 43 years in 2016. This in turn has impacted the ability of researchers to obtain tenure. While 55% of researchers could obtain tenure within 6 years in 1973, this declined to just 18% in 2009. The report also notes prolonged time in postdoctoral programs that are characterized by low salaries, inadequate training and mentorship, and few opportunities for professional advancement. The National Institutes of Health (NIH) and Congress addressed this challenge head-on through the *21st Century Cures Act*, which was passed into law in December of 2016 and provides resources to early career scientists.

CHALLENGES*

- **Age**
- **Postdoctoral Length**
- **Time to Tenure**
- **Funding Streams**

RECOMMENDATIONS*

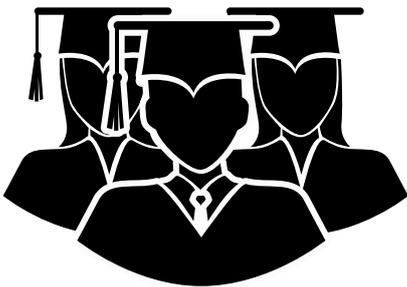
- **Promote recruitment**
- **Provide support (mentoring and professional development)**
- **Funding for new researchers (e.g. Next Generation Researcher Initiative)**



*Challenges and Recommendations are outlined in the April 2018 Consensus Study Report from the National Academies of Science, Engineering, and Medicine on the Next Generation of Biomedical and Behavioral Science Researchers.



CHANGING THE PARADIGM



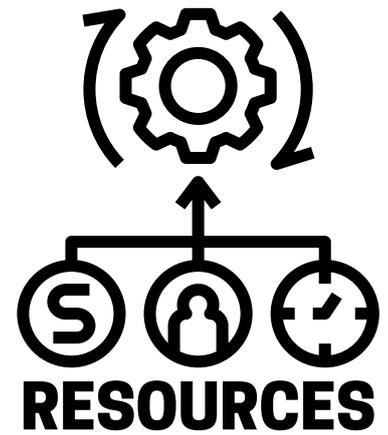
STUDENTS

- Identify those nurses who have a proclivity to research.
- Create strong peer connections and real mentorship experiences.
- Highlight the impact of nursing science and make it come alive to future students.
- Create opportunities for early exposure and develop a curriculum that reflects modernization in science.



ACADEMIC INSTITUTIONS

- Help define the science of the future.
- Develop consortia between academic institutions to support the science.
- Create a culture of accountability in which all parties are involved in shaping the nursing science and research brand.
- Recognize that all nursing schools support the pathway.



- Identify the data gaps to fully assess the problem.
- Consider purposeful recruitment strategies.
- Maximize external partners (e.g. industry, community) to demonstrate the impact of nursing science.
- Recognize the full depth and breadth of resources needed to promote increased interest.

"The roots of education are bitter, but the fruit is sweet."- Aristotle



ACTION STEPS

1

CONTINUE THE CONVERSATION

AACN will continue the conversation with internal and external stakeholders.

2

ENHANCE PHD MARKETING

Expanding upon AACN's *Nursing Science Is* campaign, a focus will be placed on sharing the impact of nursing research in the community and elevate interest in the degree through social media and outreach to future students.

3

IDENTIFY DATA GAPS

Consideration will be placed on identifying additional data points that are needed to diagnosis the decline.

4

ENGAGE ADDITIONAL PARTNERS

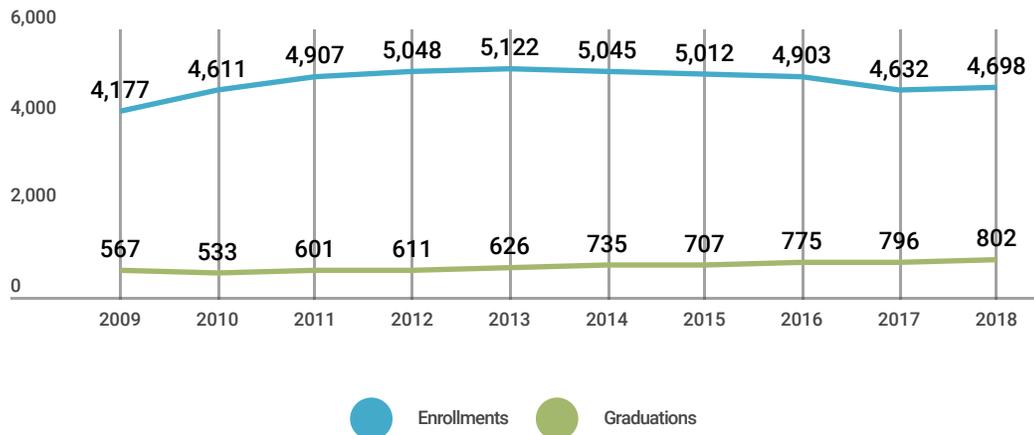
Support of nursing science extends beyond the academic infrastructure to the practice community, the public, and federal agencies. Identify key leaders for additional convenings.



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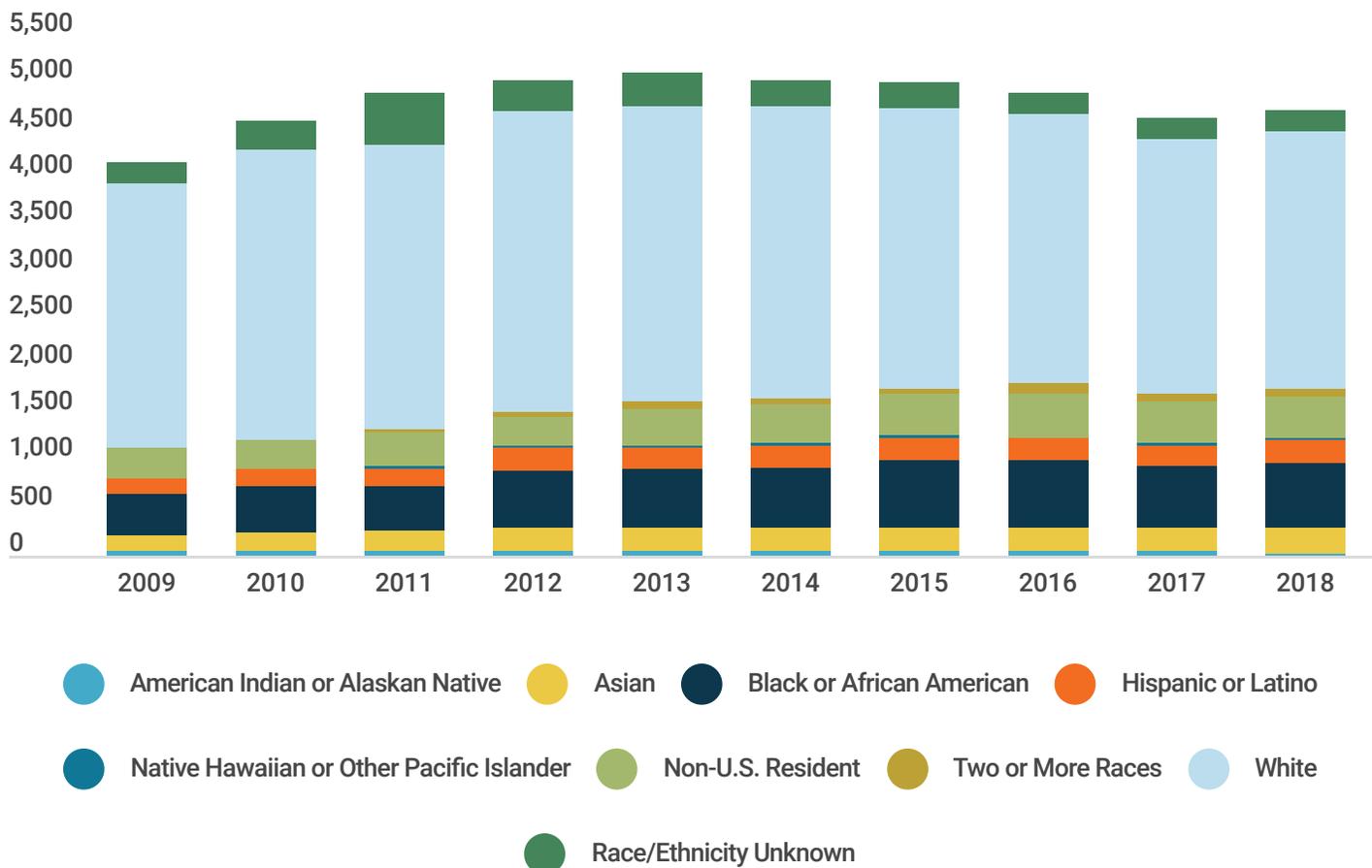
Enrollments & Graduations



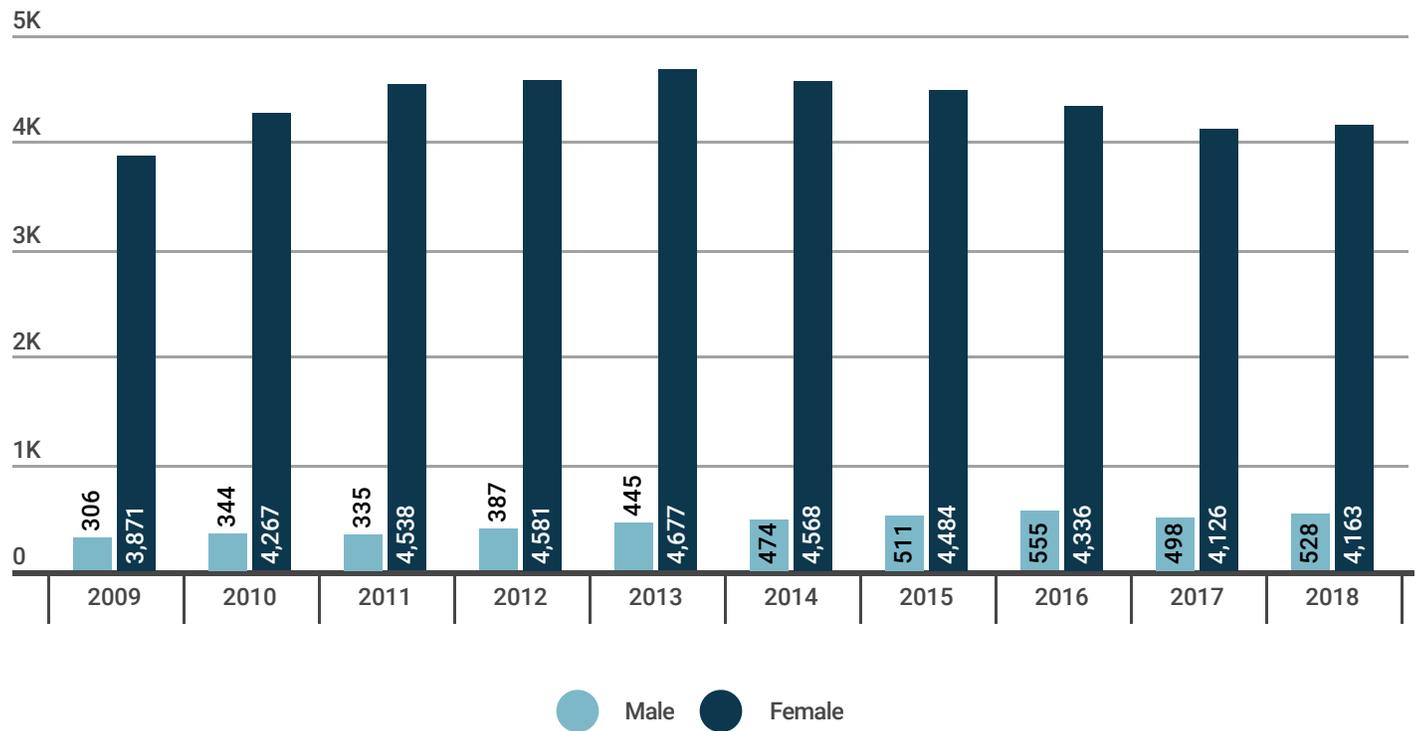
PhD enrollments have increased over the last ten years by 12.5%. Although a downward trend during 2014-2017 marked 9.6% decline, they increased again slightly in 2017-2018. PhD graduations have climbed 29% since 2009.

Trends in Student Diversity, Race and Ethnicity

The number of PhD students from underrepresented groups* in nursing has increased from 1,359 in 2009 to 1,974 in 2018 (a 45% increase). In contrast, the number of white PhD students has decreased by 3%, from 2,806 in 2009 to 2,724 in 2018.



Trends in Student Diversity, Gender



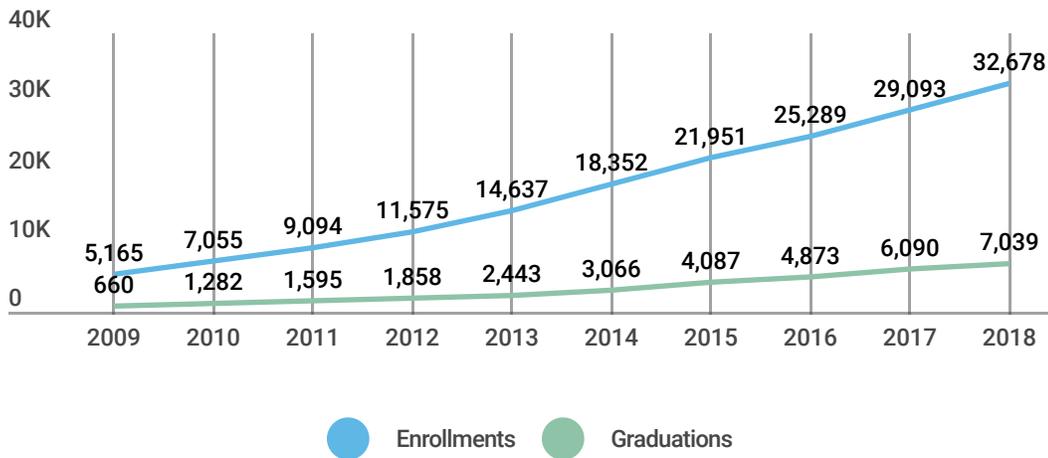
In the last ten years, the number of male students enrolled in PhD nursing programs has steadily increased from 306 in 2009 to 528 in 2018, an overall increase of 73%. However, the number of male students dropped by 10% between 2016 and 2017. In comparison, female enrollments in PhD in nursing programs increased by 21% between 2009 and 2013. Over the last five years, the number of females enrolled in PhD in nursing programs decreased by 9%, dropping from 4,568 in 2014 to 4,163 in 2018.

*Underrepresented groups include the following categories: American Indian or Alaskan Native, Asian, Black of African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, two or more races, non-U.S. resident, and race/ethnicity unknown or not reported.

Data source: American Association of Colleges of Nursing, *Research and Data Services*, 2019.

The DNP Landscape (2009-2018)

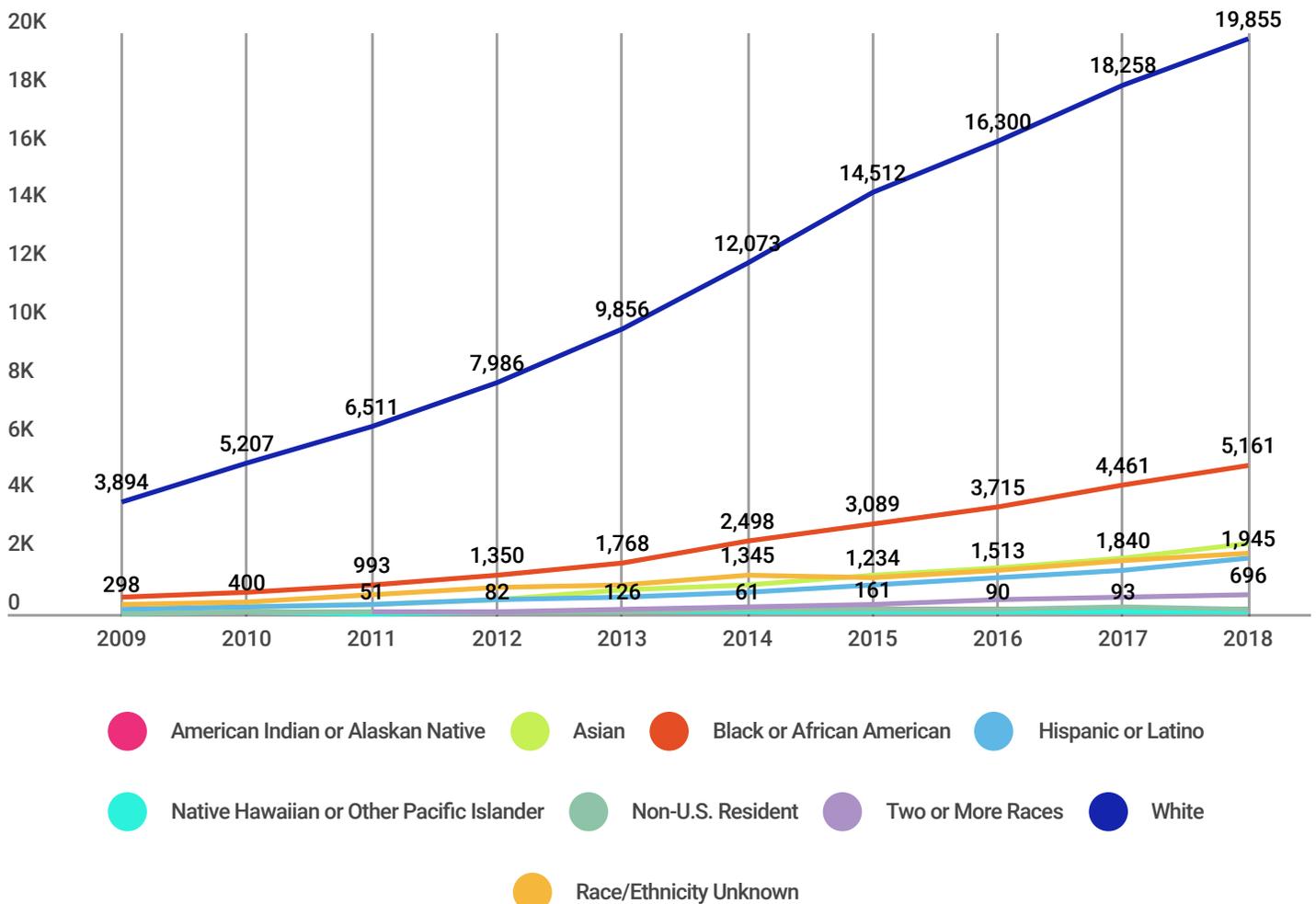
Enrollments & Graduations



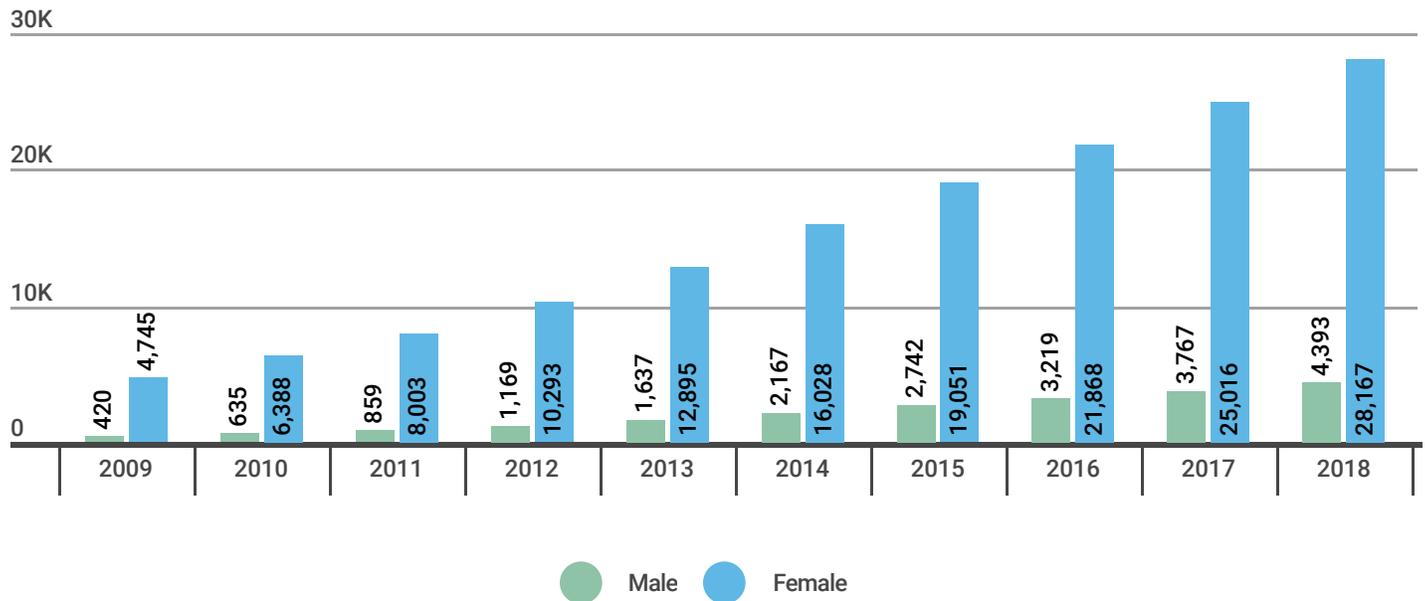
From 2009 to 2018, nursing schools across the country saw a year-to-year average increase of 23% in DNP enrollments. Over the same 10-year period, DNP graduations had a year-to-year average increase of 32%.

Trends in Student Diversity, Race and Ethnicity

The number of DNP students from underrepresented groups* in nursing has increased from 1,271 in 2009 to 12,823 in 2018 (an average yearly increase of 30%). Comparatively, the number of white DNP students has increased from 3,894 in 2009 to 19,855 in 2018 (an average yearly increase of 20%).



Trends in Student Diversity, Gender



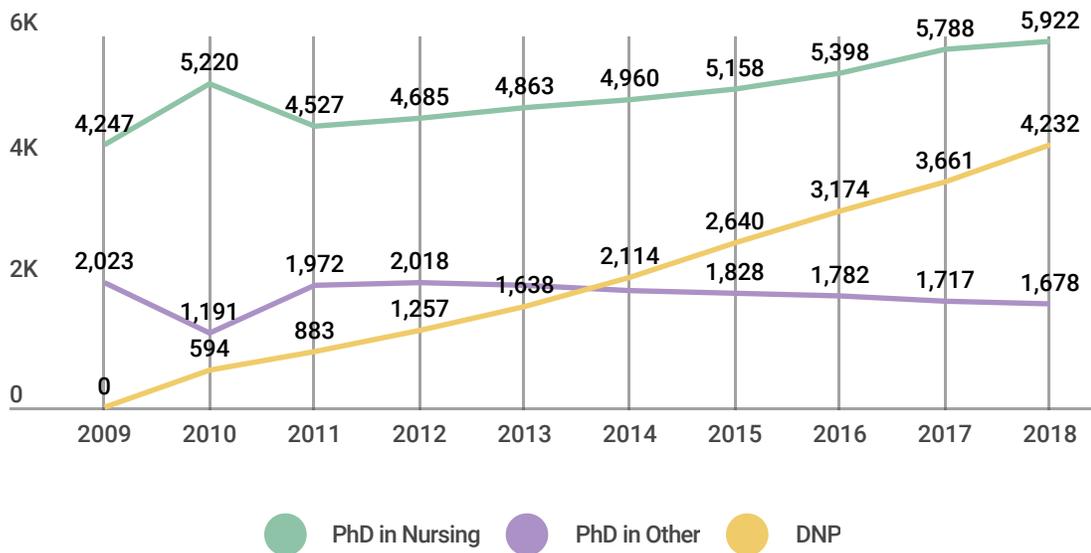
In the last ten years, the number of male students enrolled in DNP programs has steadily increased from 420 in 2009 to 4,393 in 2018, an average yearly increase of 30%. In comparison, female enrollments in DNP programs have also steadily increased over the same 10-year period. The number of female DNP students saw an average yearly increase of 22% from 4,745 in 2009 to 28,167 in 2018.

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Data source: American Association of Colleges of Nursing, *Research and Data Services*, 2019.

The Faculty Landscape (2009-2018)

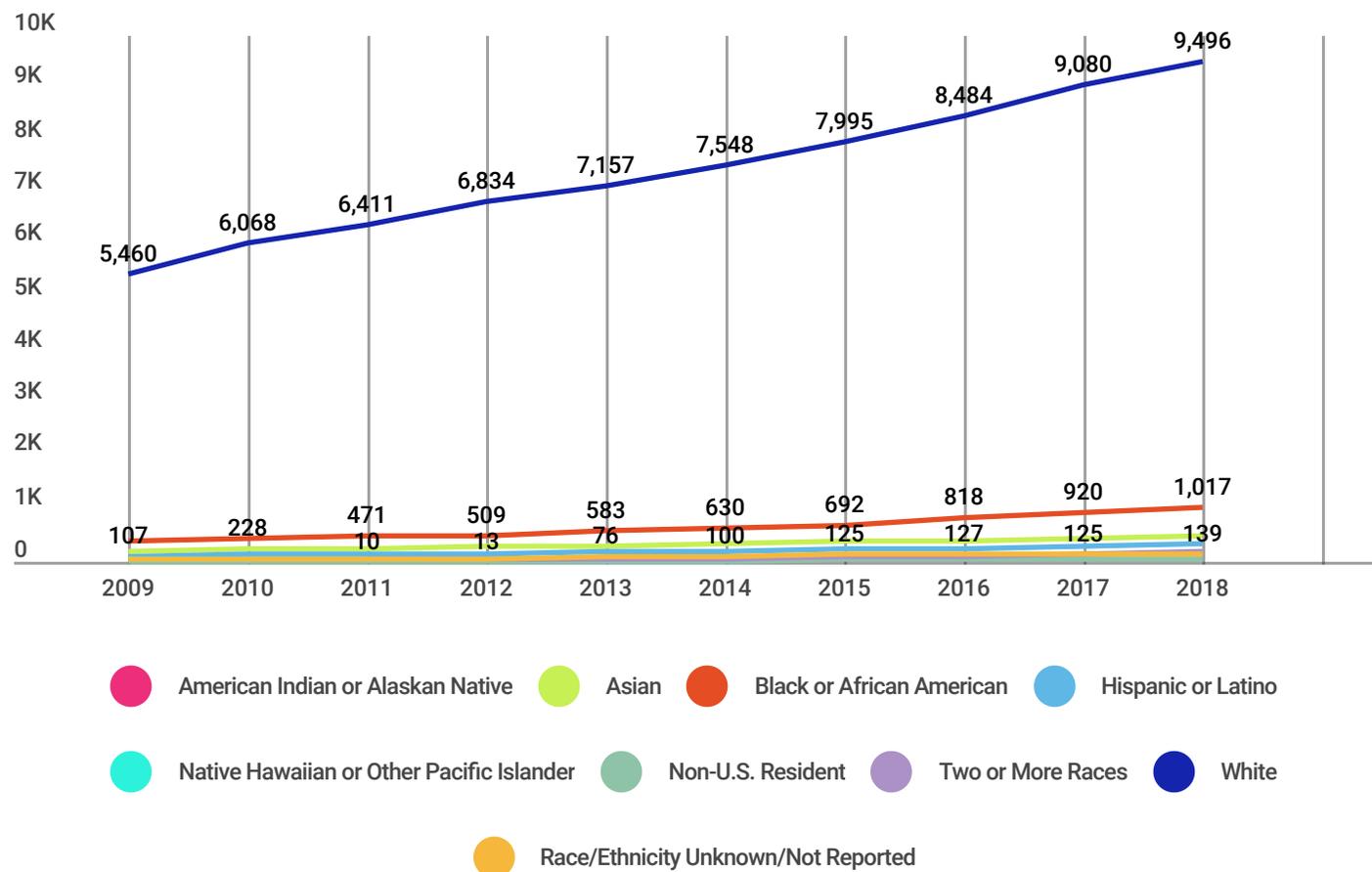
Trends in Doctorally Prepared Faculty, Degree Type



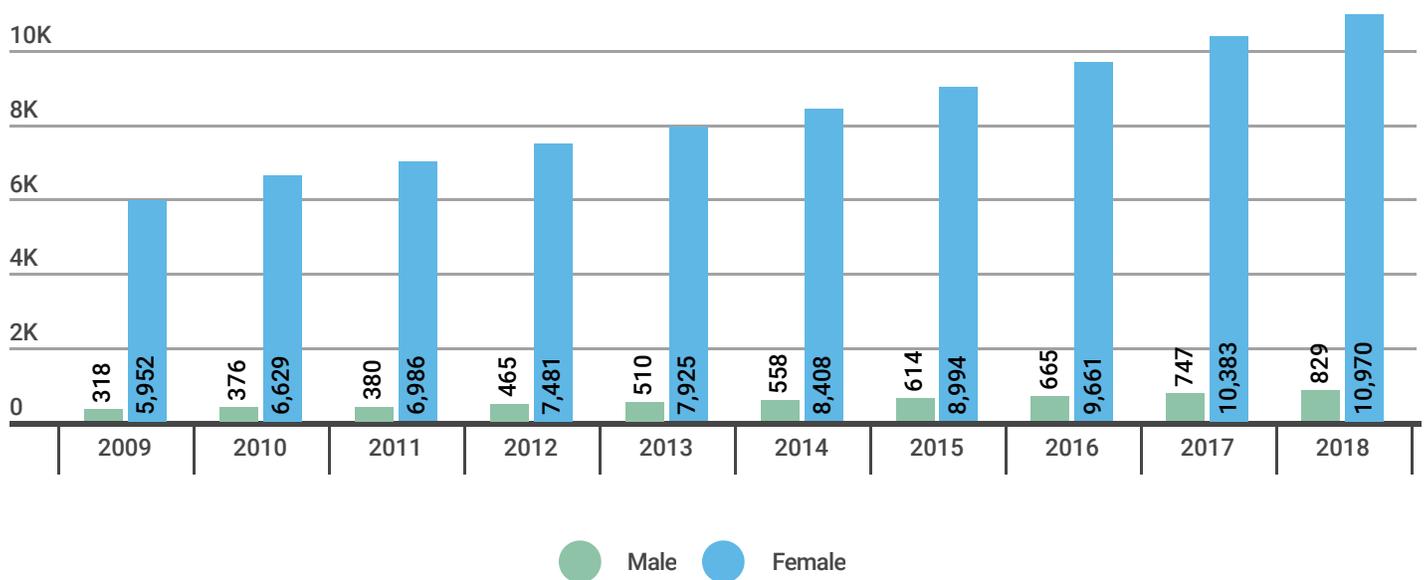
From 2009-2018, the number of full-time nurse faculty with a PhD in nursing increased by 1,675 (39%) while faculty with a PhD in another field decreased by 345 (-17%). During the same period, the number of faculty with a DNP grew from 0 to 4,232.

Trends in Doctorally Prepared Faculty Diversity, Race and Ethnicity*

The number of faculty from underrepresented groups** in nursing has increased from 810 in 2009 to 2,129 in 2018 (a 163% increase). Comparatively, the number of white faculty has increased by 74%, from 5,460 in 2009 to 9,496 in 2018.



Trends in Doctorally Prepared Faculty Diversity, Gender*



Since 2009, the number of male faculty teaching in a nursing program has increased by 160% over the last 10 years. In comparison, the number of female faculty in nursing programs has steadily increased by 84% since 2009.

*Data includes faculty with a research-focused doctoral in nursing, research-focused doctoral in a field other than nursing, and doctorate of nursing practice.

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