The Research-Focused Doctoral Program in Nursing:

Pathways to Excellence

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Introduction

The Doctor of Philosophy (PhD) degree represents the highest level of formal education to prepare individuals to advance the scholarship of discovery for a given discipline (AACN, 2010). The PhD is a prerequisite for academia and certain senior leadership roles in multiple disciplines within academic institutions and development of independence in scientific or scholarly pursuits outside academia. The PhD is a research-focused degree that prepares individuals to create, translate, and communicate new knowledge as leaders within institutions of higher education and

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E. Recruitment, retention, progression, and graduation of a student population that is diverse and inclusive of individuals from underrepresented backgrounds
F. Expectations and recommendations for postdoctoral program fellowships and other

both current nursing knowledge and the rapidly evolving nature of the nursing discipline, and (b) critique and integrate different scientific perspectives that guide the conduct of inquiry and research. Such paradigms include but are not limited to race, feminism, and/or gender theories. Cultural humility (Tervalon & Murray-Garcia, 1998) requires a lifelong commitment to self-evaluation and critique as well using one's knowledge to partner with others to advocate for change to improve health disparities. Cultural humility in research includes having a nuanced understanding of (a) the power relations inherent in contemporary social processes, including the role of racism and sexism in shaping health outcomes, and (b) diverse analytic approaches that allow for deep examination and exploration of underlying factors influencing health disparities.

Recommendations:

1. PhD-prepared nurse scientists should utilize professional ethics and judgment to conduct original research, be proficient in communicating research findings to lay and professional audiences, and identify implications for policy, nursing practice, future research, and the profession.

2. PhD in nursing graduates should possess the knowledge and skills required to assume leadership in the conduct of culturally competent research and scholarship to improve nursing practice. Nurse scientists who engage in the study of people and their health must practice cultural humility.

3. Graduates should be able to generate new ideas based on a critical evaluation of existing knowledge and develop, apply, and test theories that guide research and nursing practice, including emancipatory paradigms, which have as a central focus the role of unequal power relations in shaping social processes, including health care.

Role Domain II: Steward the Discipline

The expected outcomes of preparation for "stewarding the discipline" are broad. In the introduction to Envisioning the Future of Doctoral Education: Preparing Stewards of the Discipline, a collection of essays commissioned for the Carnegie Initiative on the Doctorate, the PhD-prepared individual is defined by Lee Shulman as "steward of [their] discipline or profession, dedicated to the integrity of its work in the generation, critique, transformation, transmission, and use of its knowledge" (Shulman, as cited in Golde, p. 3). This definition is the one (a)-1 (bl)(i)-2 (hul)dulma(P)1 (r)-1(r)-2 (a)4 (t)aTJ T* [(t) (e)-1 (gr)3uipl ofoatst gTJ 0.002 Tc -0.0

and influence policy and practice. Disciplinary stewardship within academia might involve monitoring, evaluating, and revising curricula across programs and ensuring that accreditation standards are met. The PhD-prepared nurse should be able to critique and revise curricula to reflect current social, political, and ethical issues in health care. Finally, PhD-prepared nurses must strive to accomplish higher and broader scholarship and dissemination efforts by assessing and addressing ongoing issues of scholarly accountability, professionalism, and respect for all people.

nursing program should complete an educational program that has, at a minimum, the learning outcomes competencies delineated in The Essentials: Core Competencies for Professional Nursing Education (AACN, 2021b). Although the Essentials does not directly apply to the research-focused doctorate, the sub-competencies presented provide curricular guidance for creating seamless pathways between nursing degrees as well as efficient, effective doctoral program delivery. As a practice discipline, building on the entry-level (prelicensure) and/or advanced-level (postlicensure) sub-competencies would augment the preparation of graduates to engage in the scholarship of discovery and scientific inquiry into clinical and socially relevant phenomena. It is also important to recognize that approximately 12% of PhD students are individuals from other countries (AACN, 2021d) whose educational preparation in nursing may vary considerably from American educational models (Institute of Medicine, 2011). Therefore, international PhD students may need additional support, mentorship, and socialization as they transition to doctoral education in the United States (Schneider, Bender, Madigan, & Nolan, 2020).

Some PhD tracks in nursing may prepare graduates for research in a clinical area relevant to nursing, such as health policy or informatics. These programs should include significant content and experiential experiences related to that substantive area of focus. Although research and

Financial resources for students pursuing a research-focused doctorate are essential to their success, regardless of whether the sources are federal, foundation, private, or institutional funds (Nehls & Rice, 2014). Mechanisms for financial support should be available to all doctoral students, along with reasonable stipends that adequately cover living expenses. Such funds can promote full-time study or minimize the need for students to work full time. International students are not eligible for financial support through federal funding mechanisms, therefore diversification of funding streams for students are needed beyond federal sources. Additionally, it is recommended that faculty be engaged in exploring avenues of support for their PhD students (e.g., grant assistantships, teaching assistantships, project management opportunities). Adequate financial assistance and scholarship support can reduce and potentially eliminate the economic barriers to doctoral education, thereby augmenting timely degree completion.

<u>Recommendations</u>:

1. PhD program scholarships and student funding should be a priority of deans, advancement officers, campus officials, professional organizations, and legislators.

2. Increase federal and foundation traineeship funds for both pre- and post-doctoral nursing education.

3. PhD programs are encouraged to infuse greater flexibility in curricular offerings to increase access, decrease financial challenges, and enhance opportunities that support both full and part-time study, with a focus on timely degree completion.

Diversity in the PhD in Nursing Student Population

According to the 2017 National Nursing Workforce Survey, Smiley and colleagues (2017) noted that White females continued to comprise the vast majority of nurses in the U.S. workforce. Findings from this survey showed the gender, race, and ethnic diversity among registered nurses as follows:

- x 9.1% male
- x 5% of Hispanic or Latino origin
- x 19.2% indicated that they were minorities: Asian (7.5%), Black/African American (6.2%), other (2.9%) and two or more races (1.7%)

nursing benefit from a rich diversity of experiences and perspectives, as well as greater opportunities for innovation afforded by a student population that reflects differences in race, culture, gender, religion, mental or physical abilities, age, sexual orientation, and/or other characteristics. Given the predominance of White women in nursing, schools should focus on increasing racial, ethnic, and gender diversity in PhD programs. This recommendation is not new. In 2004, the Sullivan Commission recommended that academic programs increase diversity in the health professions and advised schools to create new and additional paths to becoming a nurse researcher. Current realities and calls for action reflected in the report on the Future of Nursing 2020-2030 (NASEM, 2021) and the National Institute of Nursing Research's strategic plan (NINR, 2021) call for PhD programs to recruit and retain more students from diverse backgrounds.

In a recent study of PhD students, AACN (2021a) confirmed that White women represent the majority in research-focused doctoral programs in nursing. Among the 558 respondents, the majority were female (89.1%). Twelve students did not designate their gender (1.6%) or responded as non-binary/ gender-diverse (0.5%). Across the schools surveyed, the majority of student respondents indicated that they were White (71.7%), followed by Asian (10.6%) and Black/African American (8.1%). Most of the students were not Hispanic or Latino (91%). Thirty-five students (6.2%) declined to identify their race.

This evidence suggests that further focus on recruitment, retention, progression to graduation, and mentoring is essential to increase diversity, equity, and inclusion in nursing PhD programs. To achieve these objectives, two successful schools should be considered: the Future of Nursing Scholars program (RWJF, 2015) and the Jonas Scholars initiative (Jonas Philanthropies, 2021). Recent literature such as The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity emphasizes key considerations for enhancing the recruitment, retention, and graduation of nurse scientists. This report calls for including promoting diversity, equity, and inclusion in nursing education and the workforce, as well as increasing the number of PhD-prepared nurses among the nursing profession's priorities for the next decade (NASEM, 2021).

Recruitment

Key strategies to enhance recruitment of students from a wide variety of diverse backgrounds include:

- x Educating faculty in PhD programs to implement strategies for recruitment and retention of students based on the adoption of holistic admissions principles and practices.
- x Building and sustaining partnerships with community colleges, Historically Black Colleges and Universities (HBCUs), Hispanic-serving Institutions (HSIs) offering BSN and MSN programs, and Tribal Colleges and Universities.

Enhancing diversity. AACN (2019) promotes four approaches to improving recruitment to PhD in nursing programs:

- x Identify nurses who have an interest in and proclivity for research
- x Create strong peer connections and real mentorship experiences

x

committees, comentors, and in other capacities.

strategic socialization opportunities for engagement with nursing scholars in the broader research community, faculty can prompt their students to consider how their research interests might fit into the larger context of nursing knowledge development.

The third component of stewarding the discipline, transformation, requires dissemination of research findings. Faculty need to encourage and assist students to share their research through posters and presentations at professional conferences, grant writing, publications, and communications with stakeholders with relevant interests. Through role modeling and coaching, faculty can provide a critical component of doctoral education by guiding students to assume these responsibilities.

Table 1. Providing the Knowledge and Skills Needed to Steward the Discipline

	Acquisition and Generation of Knowledge
Foci	
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Transformation via effective communication	
x Authorship x Creative Mindset x Sharing with the Public x Manuscript Development x Creating Poster Presentations x Communicating with Legislators x Developing Conference Abstracts x Delivering Professional Oral Presentations	Provide mock reviews of posters, papers, a presentations

able to provide high-quality, culturally appropriate, and congruent health care in partnership with individuals, families, communities, and populations (AACN, 2017a). In the AACN's position statement on Diversity, Equity, and Inclusion in Academic Nursing (2017a), diversity refers to "a broad range of individual, population, and social characteristics, including but not limited to age; gender; sex; race; ethnicity; sexual orientation; gender identity; family structures; geographic locations; national origin; immigrants and refugees; language; physical, functional, and learning abilities; religious beliefs; and socioeconomic status. Inclusion represents environmental and organizational cultures in which faculty, students, staff, and administrators with diverse characteristics thrive. Equity is the ability to recognize the differences in the resources or knowledge needed to allow individuals to fully participate in society, including access to higher education" (Kranich, 2001, as cited in AACN, 2017a, p. 1).

According to a 2017 AACN policy brief on diversity in academic nursing, between 2007-2016, nursing student diversity increased from 25.1% to 29.5%, faculty diversity increased from 10.9% to 15.9%, and the proportion of male faculty increased from 4.7% to 7% (2017b). AACN reports that from 2010-2019, the number of full-time minority students enrolled in research-focused doctoral nursing programs increased from 935 (23.3%) to 1,306 (33.6%), and the number of minority graduates increased from 93 (20.4%) to 223 (32%). Despite these gains, minority faculty represent only 17.3% of all faculty positions (AACN, 2020).

In its 2021 PhD program study, AACN revealed that the majority of PhD faculty are White (79.2%), followed by Asian and Asian American (10.3%), Black or African American (8.2%), more than one race (1.1%), American Indian or Alaska Native (0.8%), and Native Hawaiian or other Pacific Islander (0.3%) across 94 respondent schools. Most of the faculty are Not Hispanic or Latino (96.3%), and 87.6% of the core faculty are female. Of special note, there are still a considerable number of schools that do not have diverse faculty. For example, 60% of nursing schools do not have Hispanic or Latino faculty, 35% do not have any Black or African American faculty, and 27% do not have any Asian or Asian American faculty. In addition, most schools do not have faculty who report that they are American Indian or Alaska Native (87%), or Native Hawaiian or other Pacific Islander (95%). Eighteen out of 98 schools do not have male faculty as core faculty in the PhD program. Although progress in increasing diversity has been shown from 2007 to 2021, more faculty from underrepresented groups need to be recruited to attract diverse nursing students and enrich the foundation of nursing science.

contributing to robust learning environments, improving the quality of the researchers, advancing the likelihood that underserved health disparity populations participate in and benefit from health research, and enhancing public trust."

nursing faculty recruitment and retention (Nowell et al., 2017). Lack of an effective mentorship progr

- x Implement a mentoring program to advance retention, promotion, and tenure of minority faculty.
- x Create a culture of collegial support.
- x Ensure leadership development of minority faculty and provide opportunities to assume leadership roles.

All strategies for promoting diversity should be regularly monitored and evaluated. Climate and culture assessments can determine how well an environment is affecting the needs, success, and satisfaction of diverse faculty in the PhD nursing program (DeWitty & Murray, 2020).

Recommendations:

Based on literature reviews and discussions, the task force makes the following recommendations to increase diversity and inclusiveness in PhD nursing programs from a program and faculty perspective:

PhD Nursing Programs

1. The commitment to diversity and inclusion should be clearly stated in the PhD program's mission and goal statements.

2. Diversity, equity, and inclusiveness (DEI) perspectives need to be integrated into the PhD curriculum; students can take a focused course or learn through courses that involve DEI concepts. Students also should have opportunities to take interdisciplinary courses and courses offered in other disciplines.

3. Develop and utilize recruitment strategies to increase the diversity in the faculty from a variety of demographic backgrounds and other disciplines.

4. The PhD nursing program should develop and monitor retention efforts to support all faculty in professional development and promotion.

5. Nursing schools could develop consortia and partnerships among PhD programs, such as

Individual Faculty in PhD Nursing Programs

1. Increase cultural competence levels and cultural humility through workshops or experiential activities.

2. Engage in interprofessional collaboration and leadership development activities

3. Build partnerships with scientists from underrepresented groups and other disciplines and foster interdisciplinary science collaboration

4. Provide additional mentorship and support for students to combat the isolation experienced by many underrepresented PhD students

5. Strengthen networks of faculty within and outside the school/parent institution that could provide appropriate co-mentorship

6. Increase the recognition of the importance of health disparities research

Resources for Faculty Support and Development

Resources essential to meeting the goals of a successful research-intensive doctoral program include institutional/school support structures to provide the financial and academic needs of students and faculty. It is expected that these resources are housed at the graduate school or university level as well as within the school. Such support structures include the following:

- x Resources to help faculty define the science of the future (i.e., merge the worlds of natural, applied, and human science into a multidimensional lens to deliver new and innovative health services to improve health outcomes)
- x Creation of a culture of accountability in which all parties are involved in shaping nursing science and research agendas
- x Purposeful recruitment strategies for faculty and students that focus on attracting diversity in thought, culture, and competencies
- x External partnerships (e.g., industry and community) that forge new research endeavors and demonstrate the impact of nursing science
- x Support to develop alternative models, such as the three-year PhD program option, which requires strong mentors in and outside of the school of nursing, adequate funding to promote full-time study, and clear benchmarks of progress throughout the program
- x Access to funded training grants (i.e., allowable percentage of federal nurse traineeship funds for students in a research-focused doctoral program)
- x Scholarships or stipends for financial support for doctoral students, ideally to encourage and allow full-time study to expedite program completion
- x Competitive salaries for doctoral program faculty that are consistent with salaries for doctorally-prepared nurses in service and industry
- x Support for faculty sabbaticals to promote professional research growth and development, especially in areas that faculty identify a need

x   Support for faculty to be able to have time to access the resources available on campus
x

- x Faculty with active programs of research and/or substantive expertise to mentor students and assist with their role preparations
- x Facilities to meet faculty research needs (e.g., laboratories, interview rooms, supplies)

Recommendations for Deans:

1. Deans should collaborate with their advancement/development officers to focus on obtaining scholarships for PhD students through annual goal setting.

2. Deans should encourage the advancement/development officers to seek philanthropic donations for named faculty chairs within their PhD program to offset faculty salaries and allow for more dedicated research time.

3. Deans should negotiate with campus or school administration to ensure adequate and equitable distribution of scholarships, stipends, and tuition remission for PhD students in their programs.

4. Deans must ensure resources to support faculty and student grant writing either at the school or university levels.

Curricular Elements in PhD Programs in Nursing

PhD programs in nursing are expected to be housed in schools/colleges/departments of nursing and universities that provide a research focused environment with faculty leaders, experts, and scientists, resources, and infrastructure to support the process of educating doctoral students to achieve all core outcomes, with an emphasis on one or more areas of nursing science.

The expected outcomes of the PhD program include mastery and extension of the knowledge of the discipline of nursing through research. A hallmark of doctoral education is a highly individualized program of study during which the student (a) explores the breadth of the discipline and a particular area of related science in depth (Villarruel et al., 2021), (b) develops expertise in the core knowledge and methods of the discipline and a selected area of research, and (c) acquires competencies to expand socially meaningful science that supports the discipline and practice of nursing (Fairman & Villarruel, 2021). The curricula should enable nurse scientists to articulate the clinical and policy implications of their research contributions (Villarruel et al., 2021).
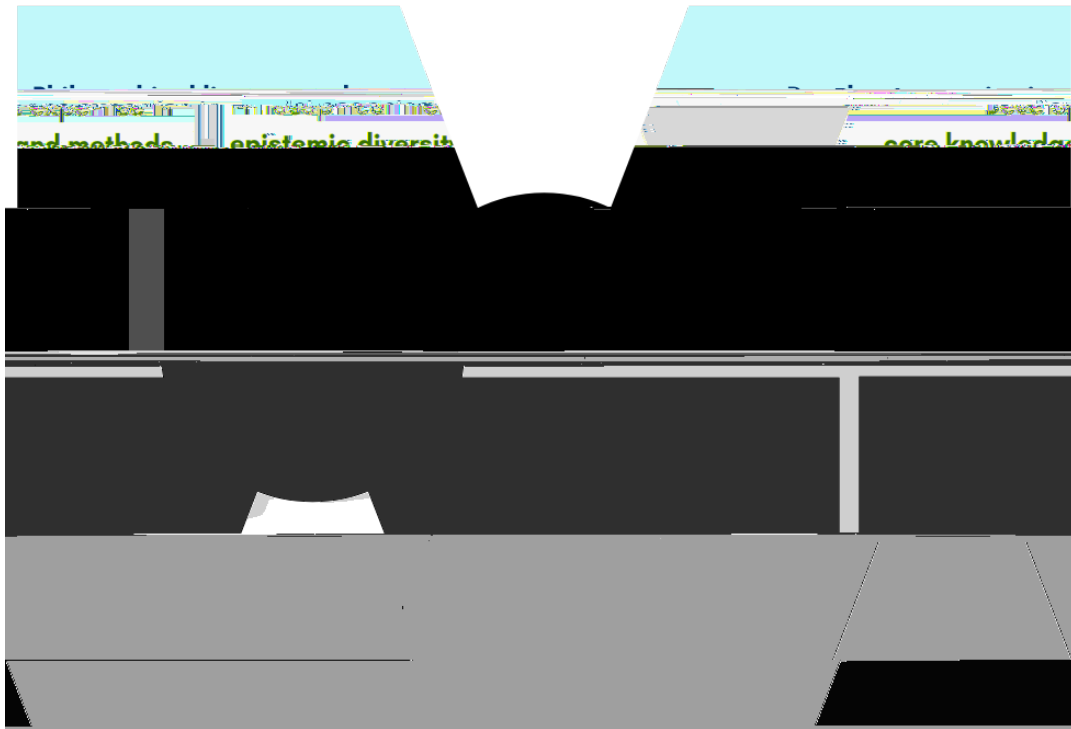
In addition, PhD programs should prepare graduates with knowledge and skills in big data and data science, leadership, mentorship, advocacy, community building, health policy, and conducting team science or engaging in interprofessional teamwork (Giordano, et al., 2021), as well as cultural humility informed by an understanding of health equity, structural inequities in health, and social justice (Boehm et al., 2020; Villarruel et al., 2021). Joseph, McCauley, and Richmond, (2021) describes content on team-based science should prepare PhD nursing students to lead, build, and work with a team and appreciate the contributions of team members from other disciplines and allow for the expression of and appreciate the contribution of each team member across disciplines. To achieve these outcomes, program offerings should include the participation of DNP-prepared nurses, joint interprofessional/interdisciplinary classes or experiences, and experiential learning in the laboratories of other sciences, and include collaboration with community agencies and organizations, especially those representing underserved and marginalized populations (Joseph, McCauley, and Richmond, 2021). Furthermore, such core educational opportunities not only benefit student researchers but allow scientists from other disciplines to better appreciate the distinct perspective that nursing brings to collaborative research. These types of experiences allow students to network strategically, learn to manage research projects jointly, engage in interdisciplinary publication activities, and share resources (Michael & Clochesy, 2016).

The curricula for the emerging nurse scientist must reflect evolving areas of science and technology (Giordano et al., 2021). The application of modules, as opposed to courses, that can be added or removed to reflect trends in science and health care, is an option that could be implemented. Such modules provide flexibility within the program and can be tailored to meet the needs of the individual student's focus of inquiry. Finally, it should be emphasized that the knowledge and skills acquired in the research doctorate should be transferable to nonacademic settings, with an emphasis on process and outcome competencies (Villarruel et al., 2021). Over the past decade, the scientific foundation on which nurse scientists develop their research programs has adjusted in response to changes and new challenges in the field. For example, precision health provides the framework for understanding how illness affects individuals,

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coursework should address health disparities, health economics, patient-reported outcomes, health promotion and awareness, workplace violence, military health, feminist theories, and LGBTI health (Henly et al., 2015; Joseph, McCauley, and Richmond, 2021; Smaldone & Larson, 2021; Villarruel et al., 2021). As defined by the Center for Disease Control and Prevention, aspects of the social determinants of health include social and economic stability, physical and neighborhood environment, education, community and social context, and healthcare systems (Centers for Disease Control and Prevention, 2021). Issues related to the social determinants of health and health equity extend beyond national borders, affecting people worldwide; thus nurse scientists must engage in global health research and collaborate on international research teamsr(h, f)

courses, CV development, job search and interview training, and help finding a postdoctoral fellowship or identifying a lifelong mentor or academic coach (Joseph, McCauley, and Richmond, 2021). Student career maps should allow a focus on both academic and nonacademic roles, depending on the student's long-term goals.

In summary, the core curricular elements of PhD programs in nursing should ensure expected outcomes of mastery and skill acquisition regarding:

- x Depth of

9. Nursing research in the emerging areas of data science needs to be fortified. Potential data science research may include segmenting populations to target health promotion, symptom management related to genetic risk or diseases, predictive analytics and preventive measures, monitoring of patient conditions and self-motivated care, merging of personal data from the IoT with EHR data, and use and analysis of social media data to provide information and social support and identify the impact of infectious disease on daily living. Best practices for conducting data science research and initiatives have been defined by several institutions, such as the NIH Office of Data Science Strategy (NIH, 2021a), National Institute of Nursing Research (NINR, 2021), National Consortium for Data Science (NCDS, 2021), and others. NIH Common Fund (NIH, 2020) programs address emerging scientific opportunities and innovative, interdisciplinary directions for biomedical or behavioral research. Centers of the NIH included many areas related to nursing science, omics, and knowledge discovery based on big data. Also, there are increasing movements for data sharing and repositories, such as All of Us Research Program (NIH, 2021b).

PhD and DNP Curricular Partnership Innovations

PhD and DNP programs provide complementary approaches to the highest level of nursing education (Cygan & Reed, 2019; Michael & Clochesy, 2016), but they differ regarding goals and competencies. The academic preparation leading to the PhD and the DNP are distinct yet share some common threads. Over the past ten years, research-focused doctoral education has been guided by the AACN Research-Focused Doctoral Programs in Nursing: Pathways to Excellence Report (2010), while DNP programs have incorporated AACN's The Essentials of Doctoral Education for Advanced Nursing Practice (Essentials) (2006). The Essentials define the curricular elements that must be present in DNP programs. The revised Essentials (2021) include ten domains and concepts for nursing practice. Several concepts identified in the updated Essentials are germane to PhD and DNP educational preparation:

- x Ethics
- x Health Policy
- x Social Determinants of Health

The unique competencies of both groups of doctorally prepared nurses must be combined and leveraged to ensure that the profession assumes a leadership role in the integration of research into practice (Michael & Clochesy, 2016). The following section highlights a few selected examples of innovative approaches to learning between PhD and DNP programs, team-based scholarship, and collaborations among faculty.

Edwards et al. (2016) describe the realization of complementarity through collaboration and collegiality among faculty and students in PhD and DNP programs. At one institution, three formal core courses were planned for joint enrollment between PhD and DNP students: Health Policy Leadership, Measurement of Clinical Outcomes, and Interprofessional Collaboration. Merrill et al. (2013) describes efforts to foster collaborative scholarly activities among students and faculty of the PhD and DNP programs by introducing targeted cross-program curricular strategies, including joint coursework assignments, scholarly seminars with cross cutting themes, shared governance experiences, and extracurricular professional service activities.

Opportunities for students from both programs to be exposed to one another and work together must be planned intentionally and engage faculty from both programs as well. Buchholz et al. (2015) present potential opportunities for collaboration (a) prior to student enrollment, featuring faculty working together with students on projects that implement the best evidence and generate new knowledge in recruitment materials, and (b) during foundational coursework, which could include core coursework in nursing inquiry and analytical methods, or policy and bioethics. Evidence shows there is a benefit for co-enrollment in one or more classes, as it creates an opportunity for academic socialization and the establishment of working relationships and yields higher numbers of and greater quality of working relationships between students.

An alternative approach to just placing students in didactic courses is a strengths program that begins with the orientation process described by Lusk and Marzilli (2018). The authors apply a three

training online. Nursing science priorities framing the substantive areas of the program are data and systems science, health determinants science, and precision science; the research focus of the dual doctoral degree must be grounded in one of these areas. Examples of additional student assignments include analyzing data from an ongoing study at a distance, inclusion on research teams, and secure video conferencing to facilitate secure data sharing. In addition, the DNP graduate must demonstrate competency in all areas designated in the Essentials (AACN, 2021b).

PhD-DNP students complete coursework for both programs and follow a prescribed plan of study. Students transitioning from the DNP program must identify a research focus for their dissertation as well as its proposed target population, anticipated research questions and methods, and professional goals for science and practice. Students transitioning from the PhD program must provide a rationale for the change and identify a potential mentor who aligns with their clinical interest and professional plans after obtaining the degree. These students are not required to complete a DNP project but must incorporate a practice focus into the dissertation

Importance of Postdoctoral Fellowships

Postdoctoral fellowships reap important benefits for the profession, the academy, the mentor, and the fellow. With regard to the profession, they advance the science of nursing in the and ur workforce through the "development of the research base required to support evidence d practice and add to the body of nursing knowledge" (NASEM, 2021, p. 201). Additionally, postdoctoral fellowships assist with the identification of new ways to employ technology to support nursing, and they generate more effective approaches to promoting leadership and lifelong learning (AACN, 2019; Schnall, 2020). Most importantly, nursing scholarship improves outcomes for clients, families, communities, and populations (Abraham et al., 2021).

Within academe, fellowships increase the standing of institutions because they support and promote research specializations and targeted disciplines. Such assistance leads external agencies (e.g., the Carnegie Classification of Institutes of Higher Education) to acknowledge the institution as research focused, thereby positively affecting academic standing (Giordano et al., 2021). Similarly, postdoctoral fellowships benefit schools, departments, and faculty mentors by advancing the science of nursing and increasing their standing within the profession and ability to garner beneficial research funding (Avery et al., 2021). Faculty who serves as a postdoctoral mentor experience rewards that may include (a) the professional satisfaction of mentoring a relatively new nursing researcher as they establish their own program of research; (b) recognition for their assistance and expertise; and (c) advanced standing within nursing and academia, including the achievement of promotion and tenure (Hadidi, Lindquist, & Buckwalter, 2013).

Fellowships offer innumerable benefits that help the doctorally prepared nurse to develop as an independent researcher. The mentoring paradigm provides a supportive environment in which the postdoctoral fellow can (a) engage in career progression activities; (b) focus on skills to advance a program of research that offers additional depth in a specific area of nursing science; (c) pursue interprofessional and intercollegiate research; (d) craft and submit research grants; and (e) obtain opportunities to share their research with wider audiences through professional publications, meetings and other such venues (Abraham, et al., 2021; Giordano et al., 2021; Hadidi, Lindquist, & Buckwalter, 2013).

Characteristics of a Robust Postdoctoral Fellowship Program

Institutional Characteristics. Targeted capital and human resources are associated with productive doctoral and postdoctoral fellowship programs. Bevil and colleagues (2012) surveyed schools of nursing with doctoral degrees to describe the resources available for research support. Of the 170 eligible schools, 120 (70.6%) responded to the survey. The majority of responding schools (61.7%) were based in an academic health center, and 75% reported having a dedicated research office that offered various services for scholarly support, faculty development, and research productivity, including assistance with information technology, and non data based manuscript preparation and editing, and grant writing. Of the schools with research offices, 59% reported receiving funding from the National Institutes of Health within the past year, with greater funding associated with offices that were more fully established for longer periods and/or employed more staff or services (e.g., research director, grant administrator, statistician, clerical staff, research packages and research space, and support services).

companion AACN study (2021c), deans of 107 schools that offer a PhD program reported that less than 50% of their PhD students are pursuing postdoctoral fellowships.

reliable and valid instrument to assess the quality of the research focused doctoral program in nursing's evaluation plan.

<u>Recommendations</u>:

1. A comprehensive evaluation plan, supported by sufficient resources, must be in place and should include the following

    x   Be systematic, ongoing, comprehensive, and focused on the specific mission, goals, and outcomes of the university and program, which should be assessed on an ongoing, regular basis (e.g., regular, systematic internal/external evaluations of the program within a specified timeframe, such as every 5 years).
    x   Assess outcomes of holistic recruitment practices and student progression through the program.
    x   Assess the extent to which graduates attain the desired outcomes of the program. For example, graduates can be surveyed immediately prior to graduation, and again at 1, 3, 5, and 10 years after graduation (the year point allows assessment of postdoctoral fellowship and related accomplishments).
    x   Include comprehensive process and outcome1 (a6](w)4 (sp)6.)5 (t)(i) (a6](earr)-0.9 (a)- (w) (oc)

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Research-Focused Doctoral Program Pathways to Excellence Task Force

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