FIRST NURSE SCIENTIST

- Did you know Florence Nightingale was the first nurse scientist?
- Pioneering work in statistics
- Research in hospital safety, mortality rates

NURSING RESEARCH EVOLUTION

1950s ➔ 1960s ➔ 1970s ➔ 1980s
- National Center for Nursing Research $16M
- Nursing Theory Development

1990s ➔ 2000s ➔ 2010s
- NIH-NINR
- Trajectory Result: Nursing education research was left behind. Why? What has been the consequence?

COMMON NURSING EDUCATION TOPICS IN LITERATURE

- Student attributes
- Diversity
- Contingency
- NCLEX and other exams
- Student experiences and attitudes about education
- Student success and resiliency
- Clinical judgment in practice
- Clinical experiences
- Methods of delivery
- Length of program
- IPE
- Social Determinants of Health

EVIDENCE OF PROGRESS FOR NURSING EDUCATION RESEARCH

- More journals publishing educational research and with higher rigor
- Landmark studies and initiatives involving nursing education during last decade
  - Educating Nurses, 2010 (Benner, Sutphen, Leonard)
  - IOM Future of Nursing, 2010
  - Interprofessional Education Collaborative
  - NCLEX National Simulation Study, 2014 (Hoyden, Smiley, Alexander, Kardong-Edgren, Jeffries)
  - Funding for educational scholarship (Federal, Foundation, Private)
IS THE PENDULUM MOVING BACK?

AACN Position Statement Defining Scholarship for Academic Nursing, 2018

“…address the scholarship of discovery or scientific inquiry, the scholarship of practice and the scholarship of teaching…”

The scholarship of teaching focuses on understanding, describing, explaining teaching-learning strategies, assessing their impact on learner outcomes, and disseminating results.

EXAMPLES APPLICABLE TO THE SCHOLARSHIP OF TEACHING AND LEARNING

- Redesigns or develops educational systems to effectively prepare students as practitioners, researchers, and educators of the future.
- Develops and implements evidence-based educational strategies that promote critical thinking and clinical decision-making.
- Evaluates impact, cost effectiveness, and efficiency of teaching strategies in attainment of student learning outcomes.
- Disseminates research findings from programmatic and systematic evaluations to foster curricular changes in all levels of nursing education.
- Develops new teaching methods and strategies to prepare graduates for a transformed healthcare system.
- Incorporates and evaluates the use of instructional technology in nursing education.
- Leads the design of interprofessional education that enhances collaborative practice and/or policy development to improve health outcomes.

AACN Position Statement Defining Scholarship for Academic Nursing, 2018

GENERATIONAL REPRESENTATION OF TODAY’S STUDENTS

<table>
<thead>
<tr>
<th>Generation</th>
<th>Born Approx.</th>
<th>Ages</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>GenZ</td>
<td>1996-2015</td>
<td>5-24</td>
<td>Majority are white, no children or dependents, financial support from parents, limited to no debt at graduation, 68% live at or below poverty line, 36% have food insecurity, 64% work while in college (40% full-time), 19% have disability</td>
</tr>
<tr>
<td>Millennials</td>
<td>1981-1995</td>
<td>25-39</td>
<td>Majority are white, 41% are over age 25, 45% are students of color, 26% are parents, 39% attend part-time, 40% attend a community college, 55% are financially independent from parents, 42% live in a two-parent family, 26% have federal loans, 68% earn an average of $50K, 64% work while in college, 13% are full-time students live on campus, 39% attend part-time, 45% attend a community college, 19% have disability</td>
</tr>
<tr>
<td>GenX</td>
<td>1965-1980</td>
<td>40-55</td>
<td>Majority are white, 41% are over age 25, 45% are students of color, 26% are parents, 39% attend part-time, 40% attend a community college, 55% are financially independent from parents, 42% live in a two-parent family, 26% have federal loans, 68% earn an average of $50K, 64% work while in college, 13% are full-time students live on campus, 39% attend part-time, 45% attend a community college, 19% have disability</td>
</tr>
<tr>
<td>Baby Boomers</td>
<td>1946-1964</td>
<td>56-74</td>
<td>Majority are white, 41% are over age 25, 45% are students of color, 26% are parents, 39% attend part-time, 40% attend a community college, 55% are financially independent from parents, 42% live in a two-parent family, 26% have federal loans, 68% earn an average of $50K, 64% work while in college, 13% are full-time students live on campus, 39% attend part-time, 45% attend a community college, 19% have disability</td>
</tr>
</tbody>
</table>

STUDENT ATTRIBUTES

- Mental Model of the “Traditional” Student
- What Students Look Like Today

10-YEAR TRENDS GRADUATES OF PRELICENSURE PROGRAMS

FUTURE NURSING WORKFORCE

- Nursing workforce expansion
- Accelerate diversity and inclusion
- Undergraduate preparation: four spheres of care, systems thinking, clinical judgement and decision-making
- Graduate preparation: advanced clinical/systems practice and research
TRENDS IN FACULTY

- Major shift occurring
- Faculty retirements
- New faculty clinicians entering academic nursing
- Average age of faculty
- Shift in degree preparation of faculty

{Graph showing change in faculty preparation 2009-2018}

COMPETENCY-BASED EDUCATION / ASSESSMENT

“Transition from seat time in favor or structure that focuses on demonstration of mastery of academic content, regardless of time, place or pace of learning.”

US Department of Education

MICRO-CREDENTIALS, BADGES, CERTIFICATES, STACKABLE CREDENTIALS

- Documentation of professional development, skills and accomplishments.
- Recognition of incremental learning in visible ways, supports career development, especially with stackable credentials.

EXPANSION OF LEARNING TECHNOLOGIES

- High Fidelity Simulation
- Augmented Reality
  - Human anatomy techniques
  - Patient interactions
- Learning procedures
- Virtual Communities
- Online/Distance Learning
DESIGN BUILD APPROACHES FOR EFFECTIVE TEACHING

- Teams of faculty with an instructional designer to promote innovation and effective teaching methods in the classroom.
- New models of instruction for team teaching, use of teaching assistants, collaborative learning, and evaluation.

HEALTHCARE SYSTEMS AND CARE DELIVERY

- Fewer healthcare systems
- Changing care delivery settings
  - Regional acute care facilities ("mega hospitals")
  - Community-based primary care settings (retail, home)
  - Telehealth
  - One-stop places for care
- Services for lab / pharmaceuticals
- Value-based care reimbursement

PERSONALIZED MEDICINE / CUSTOMIZED PATIENT CARE

- RNA based therapy - prevents disease through resealing.
- BioNano Technology – Full geno-sequence on every baby born to predict health issues
- Individualized pharmaceuticals
- Individualized diet and exercise regimens
- Patient-specific products thorough 3D printing

ARTIFICIAL INTELLIGENCE (AI)

Applications in:
- Triage
- Clinical diagnosis & decision support
- Image support; decipher large amount of information in scans aids in screening.
- DNA sequencing technology and aggregate data (detect CA with a couple of hundred cells)
- “Therapy” for depression
- Home Care

HEALTHCARE ROBOTS

Examples of Current Uses
- Reception
- Mobile Supply Manager
- Medication Administration
- Mobile laboratory
- Surgery

SMART DEVICES

- Communication health care team members (email, text, phone call)
- Push notifications systems
- Cognitive aids for care
- Charting
- Medication administration
- Laboratory / Specimen
- Calculator
- Reference checks
- Use of Apps for care efficiencies
- Improving patient care experiences
HONEST CONVERSATIONS ABOUT PREPARATION

- The Doctor of Nursing Practice (DNP) is not a research degree
- The Doctor of Education (EdD) is not a research degree

HONEST CONVERSATION......CURRENT STATE OF ISSUES

- "So what" studies
- "Little is known"
- Studies that lack quality design, methods
- Inaccurate conclusions and/or lack of generalizability of findings

HONEST CONVERSATION......CURRENT STATE OF ISSUES

- Most nursing education research dominated by single group, pre and post test design
- Numerous threats to internal validity, weak empirical evidence
- Can’t establish causation in research that post intervention effects can’t be explained by confounding variables.

GETTING SERIOUS ABOUT QUALITY NURSING EDUCATION RESEARCH

- Ask compelling questions that matter
- Define outcomes that make a difference in practice
- Raise expectations for quality
- Design studies that are robust with rigorous methods

CONDUCT STRONG LITERATURE SEARCH

- Understand purpose of the literature search.
- Literature searches for research should be broad in scope.
- Concept under study should be analyzed over time and across disciplines.
- Understand databases used for searches.

ROBUST, RIGOROUS DESIGN

- Multi-site
- Control Groups
- Managing Variables
- Interventions – Who, Dose, Timing, Conditions, Effect
FOLLOW BEST-PRACTICE GUIDELINES FOR CONDUCTING AND REPORTING RESEARCH

- PRISMA: Preferred Reporting Items for Systematic Reviews
- SQUIRE: Standards for Quality Improvement Reporting Excellence
- CONSORT: Consolidated Standards of Reporting Trials
- EQUATOR Network
- INSPIRE: International Network for Simulation-Based Pediatric Innovation, Research, Education
- STROBE: Strengthening The Reporting of Observational studies in Epidemiology
- SRQI: Standards for reporting qualitative research

OUTCOME MEASUREMENT

- Focus on outcomes that matter.
- An outcome implies a cause and effect relationship.
- Each outcome requires specific measurement.
- Use well-developed, tested instruments.
- Instrument development is hard, laborious work.

REPORTING FINDINGS

- Correct application for data analysis used
- Incorporation of effect sizes
- Correct interpretation of results
- Acknowledging flaws
- Generalizability

FORM AND WORK IN RESEARCH TEAMS

Research is not a solo sport!

Find colleagues:
- who have skills in methods design, measurement
- who have skills in various educational strategies
- in practice settings
- in other disciplines
- in other institutions or other settings (industry)

FACULTY DEVELOPMENT FOR SUCCESS

- Adequate preparation of nursing faculty
- Establish a program of research in nursing education
- Mentors and teams
- System-level and organizational support
- Reward for scientific inquiry in nursing education

QUESTIONS & DISCUSSION