Disclosure

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Three-Year Assessment of One Pre-Licensure Cohort of Baccalaureate Nursing Students’ Genomic Knowledge, Attitude and Comfort

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Objectives

- Explore the methodology
  - descriptive three-year assessment of pre-licensure students’ self-reported attitude, comfort and retained genomic knowledge
- Discuss findings of study
  - explore how best to further enhance retained genomic knowledge
- Explore various strategies to further incorporate genomics into pre-licensure curricula
Purpose

- 3-year convenience sample study explored one pre-licensure cohort of baccalaureate nursing students
  - from large diverse urban school of nursing (SON) in United States
- Completed pre-class assessment survey prior to beginning stand-alone required genetics course in sophomore year [2nd year of nsg school]
  - followed by post-class assessment survey at completion of course [2014]
- Mechanism identical for data collection
  - Genetics/Genomics Literacy Assessment (GGLA) survey
    - administered at beginning of junior year [2015; 3rd year]
    - again as seniors [4th year] in 2016
      - to assess retained genomic knowledge
Background

• With emergence of genomic era
  • all healthcare professionals expected to be knowledgeable of genomic content
  • be able to integrate knowledge into practice
  • effectively participate in inter-disciplinary dialogue

• Important to educate students
  • implications in patient care
    • especially related to ethical and legal aspects
  • importance of an accurate family history assessment
  • future role as healthcare provider
Methodology

- Two analyses were of interest [Genetics/Genomics Literacy Assessment (GGLA)]
  - comparison of pre vs. post intervention on sophomore [2nd year] cohort
  - retention of information through junior [3rd year] and senior year [4th year]
    - Study conducted from 2014-2016
- Most participants remained through-out study
  - data not paired one-to-one as were de-identified
    - thus more conservative, independent assumption used in analyses
• Data collected on multiple variables
  • total score and correct responses (with no cut-off points)
    • score ranges from one to thirteen
    • correct ranges from 0 to 1.0 for proportion correct

• Perceptions and attitude about genomics integration into nursing curricula and comfort level about genomics
  • Perceptions and attitudes, seven variables
    • ranged from 1=strongly agree to 4=strongly disagree
  • Comfort level of genomics, five variables
    • ranged from 1=extremely comfortable through 4=not comfortable
Genetics/Genomics Literacy Assessment (GGLA)

- **Adapted survey** [DeSovo, 2013]
  - Initially devised to explore baccalaureate nurse educators’ self-perceived genetic knowledge in United States

- Included concepts related to perceptions and attitudes about genetics incorporation into nursing programs and comfort level in practice and education
  - thirty questions in total for modified survey

- Previously utilized to further explore nurse educators’ and advanced degree nursing students by presenter
  - Validity & reliability confirmed
Participants

- One pre-licensure cohort of baccalaureate nursing students asked to participate in 3-year study
  - 72 students completed pre-class survey
  - 69 students completed post-class survey
- In 2015 same students [N=68] completed identical survey as juniors [3rd year]
- In 2016 as seniors [N=57; 4th year] completed survey again
  - assessed retained genomic knowledge
Results

- Total score variable [retention of genomic knowledge over time]
  - sophomore vs junior vs senior mean: 7.1 vs 6.9 vs 8.7, p<0.001
    - maintenance from sophomore (post-class assessment) to junior year
    - increase in senior year score for cohort of students
- Comparison of pre-class vs post-class on sophomore class
  - statistically significant differences demonstrating higher knowledge after class
- Enhancement of confidence, perceptions and attitude regarding genomics
  - evident with comparison of pre-class vs post-class and overtime after taking foundational course
- Overall students felt nurse educators need more confidence in teaching and explaining
  - patient advocacy requires nurses’ exhibit knowledge of ethical and legal understanding as relates to genomics
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<td>7.3 ± 2.05</td>
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<td>0.5 ± 0.14</td>
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## Perceptions and Attitudes about Genomics Integration into Nursing Curricula

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<th>Characteristic</th>
<th>Pre-Class N=72</th>
<th>Post-Class N=69</th>
<th>P-Value</th>
<th>Sophomore N=69</th>
<th>Junior N=68</th>
<th>Senior N=57</th>
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<td>1.4 ± 0.64</td>
<td>1.4 ± 0.60</td>
<td>0.95</td>
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<td>0.79</td>
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<td><strong>INTEGRATE genomic course helpful for practice Mean±SD</strong></td>
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Comparison of survey item score
- maintenance from sophomore to junior year
- increase in item score and correct responses in senior year

Perception, attitude and comfort level, by all three cohort groups
- continues to demonstrate importance of genomic health awareness

Gap in genomic knowledge, of educators in both academia and clinical setting, must be addressed
- as comfort improves, confidence improves
  - patient outcomes enhanced
- first step towards confidence and capability
  - fully implement and integrate standards of genomic competency into academic setting
Strategies to Incorporate Genomics: Educate the Educator

- Cincinnati Children's Hospital, Genetics Education Program/Web-based Genetics Education Institute (WBGI)

- Summer Genetics Institute offered by National Institute of Nursing Research
  [https://www.ninr.nih.gov/training/trainingopportunitiesintramural/summergeneticsinstitute#.UsWwBrRIUXc](https://www.ninr.nih.gov/training/trainingopportunitiesintramural/summergeneticsinstitute#.UsWwBrRIUXc)

- Genetics/Genomics Competency Center [http://g-2-c-2.org/discipline/nurse](http://g-2-c-2.org/discipline/nurse)
Stand-Alone or Thread Content

- Identify in-house experts
  - map genetics content to specific course
  - establish faculty who are comfortable with content
    - Individual programs decide
      - taught by educators within nursing or from another discipline
- Nurse educators cognizant of ethical, legal and social implications
- Transparency of content clearly articulated for students
  - healthcare professionals have knowledge and capability to respond to complex health issues
    - provide appropriate information and competent care
- Educating students that healthcare professionals must ensure client privacy
  - all information obtained and retained with professional ethical conduct
Conclusions

- Promoting knowledge and practice integration of universal genomic health promotion
  - requires healthcare professionals and students be knowledgeable and cognizant of their participation
    - to advance client health outcomes
- Genomic era impacts nursing education and practice in a multitude of ways
- Nursing profession must meet challenge to prepare future practitioners
  - by incorporating genomic content continuously through-out the curricula and clinical experiences
- Advancements in genomic health care
  - becoming more important in understanding individuals’ risks
  - best treatment options for different conditions
Thank you for your time

If anyone has any questions, please do not hesitate to contact me


