Improving Nurse Practitioner Student Confidence and Competency Through Virtual Technology and Distance Education

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Program Purpose

• To address the increasing complexity of the primary care older population
  – Multiple chronic conditions
  – Polypharmacy.
• Part of ongoing AGNP and FNP student program evaluation
• Outcomes must be the same as traditional/face to face teaching
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Program Purpose

- Promote competence and confidence synthesizing principles
  - Quality geriatric care
  - Safe prescribing practices
  - Exposure to complex patient scenarios
  - In a Distance Education Setting

Program Overview

- FNP and AGNP students enrolled in the last clinical course
- Presented in a fully integrated distance education setting
- Student resources
  - Provided by Dept. of Research and Creative Activity $500 grant
    - Beer’s List Pocket Card
    - Pain Management in the Primary Care Settings (American Pain Society)
- Teaching Faculty Support
  - Ungraded pilot project but mandatory synchronous attendance
  - Blackboard platform as a stand alone course shell
  - SABA lectures every 2-3 weeks in the 11 week summer semester
  - Virtual Clinic cases on alternating weeks following lecture
Module Objectives for Psychotropic Medication Use

- Discuss basic principles for safe prescribing for elderly patients.

- Describe the categories of medications most likely to cause adverse reactions or drug interactions for the elderly.

- Identify potentially inappropriate medications for geriatric patients using BEER’s criteria

- Describe use of START and STOPP to reduce unnecessary medications
Module Objectives for Logical Prescribing

- Define the types of behaviors usually associated with various forms of dementia
- Identify logical prescribing practices for antidepressants and antipsychotic medications
- Discuss efficacy of antipsychotic agents in dementia related behaviors
- Create the most efficacious treatment plan for dementia related behavior using history, physical, and lab findings
- Describe legal and ethical considerations for atypical antipsychotic use in dementia related behaviors

Module Objectives for Pain Management

- Explain the differences and similarities between somatic, visceral, and neuropathic pain
- Describe barriers to chronic pain management in the geriatric patient
- Evaluate pain using appropriate tools for condition and mental status
- Analyze appropriate pain therapeutic interventions and modalities specific to sources of pain
- Discuss principles of appropriate and logical analgesic prescribing considerations
- Evaluate the NPs’ ethical and legal obligations for pain management in the geriatric population
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Nurse Practitioner Virtual Clinic Experience

- Self-paced patient assessment
- Application of information to plan care
- Evidence-based feedback/rationale
- Includes ECGs, x-rays, lab results, links
- SOAP note
- Cultural and Ethnic Diversity
- Limited only by our imagination!

Virtual Clinic Cases

- Complex geriatric virtual patients that correlate with clinical patients
  - Gero-psychiatric conditions
  - Multiple chronic health conditions
  - Polypharmacy.
- Self-paced VC provides immediate feedback to the student regarding their clinical critical reasoning.
- Virtual Cases
  - Post-herpetic neuralgia with chronic pain
  - Dementia with behavioral disturbances
  - Pneumonia requiring antibiotics
    - Antibiotic renal dosing, and consideration of warfarin therapy.
How it works

Cast of characters
- Receptionist
- Preceptor
- Patient

Classic patient interview/diagnostic sequence
- Chief Complaint
- HPI
- Review of Systems
- Physical Exam
- Lab Tests
- Differential Diagnosis
- Impression
- Care Plan

The art of the question

VC Components: Conceptual

Front End
- Clinic
- Models
- HTML Viewer
- Soap Notes
- Patient Information
- Multimedia
- Survey Links- etc.

Back end
- Administrative Web Console
- Case Builder
- Voices/Text-to-Speech Engine

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VC Components: Technical

Front End
- Unity 3D engine/web plug-in
- IVONA text-to-speech engine
- Models
- Rocket box
- Mixamo animations
- MS Kinect

Back End
- Database/ MS SQL server
- Admin website
- Student section
- Instructor Section
- Case Builder
- XML web service

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Directions

- Multi-media
- Billing/Coding
- International patients
- Select-a-model

Results

• A paired-t test $t(31) = -7.93, p=.000$ two-tailed
• Comparing differences in pre- and post-summation scores.
• A statistically significant difference in scores

FNP (n=20, $m=12.97$, $SD=3.08$)
AGNP (n=12, $m=16.81$, $SD=3.02$)
Cronbach's $\alpha = .76$. 
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Results

• The AGNP students showed more confidence entering the program than the FNP students

• Difference was negated at the end of the program

• Student feedback overwhelmingly positive

Student Feedback

• “These sessions were very helpful. The virtual clinic aspect was helpful and I would have liked more cases to practice”.

• “I thought the sessions were great and very informative about geriatric prescribing”.

• “It helped to bring pharmacology and clinical content together and focus on geriatric population when prescribing, especially as an FNP student”.

• “Wonderful and very helpful series”
Lessons Learned

• Synchronous and asynchronous delivery needed
• Integrated as a graded component into the final courses in both programs
• Provided exemplar for program evaluation and development
• Unexpected opportunity for faculty development
  – Master SOAP notes with rationale (handouts)
• Students requested increased case complexity
• Students commented that content was seen on national certification exams

SPECIAL PIRATE NURSE THANKS
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