

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



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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

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Program Schedule

Geriatric Prescribing Series Calendar		
Week 3 June 2	"Logical Prescribing"	SABA 7pm-9pm
Week 4 June 8-14	Virtual Clinic #1 One attempt	Case #142, NP Gero Intensive #3
Week 6 June 23	"Psychotropic Medications"	SABA 7pm-8 pm
Week 7 June 29-July 5	Virtual Clinic #2 One attempt	Case # 130, NP Gero Intensive #1
Week 8 July 7	"Pain Management"	SABA 7pm-8 pm
Week 9 July 13-19	Virtual Clinic #3 One attempt	Case # 131 NP Gero Intensive #2
Week 10 July 20-26	Qualtrics Post program evaluation via email.	

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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

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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

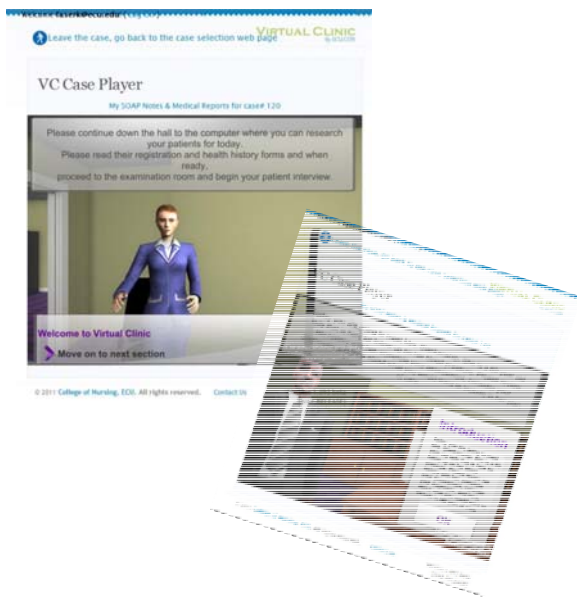
Cast of characters

- 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



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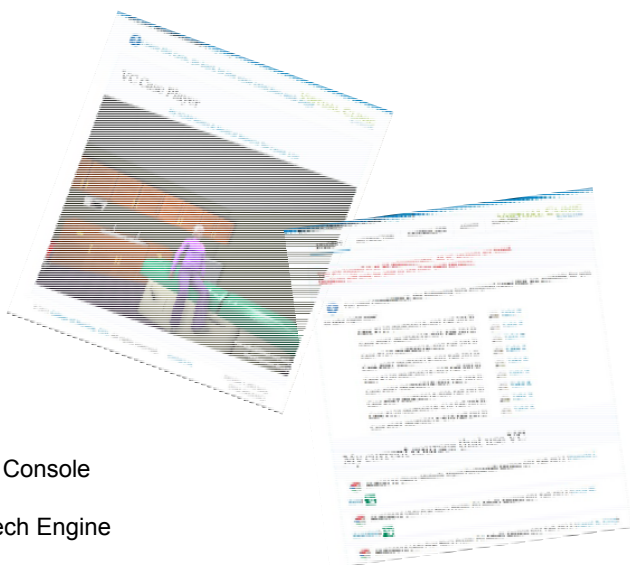
VC Components: Conceptual

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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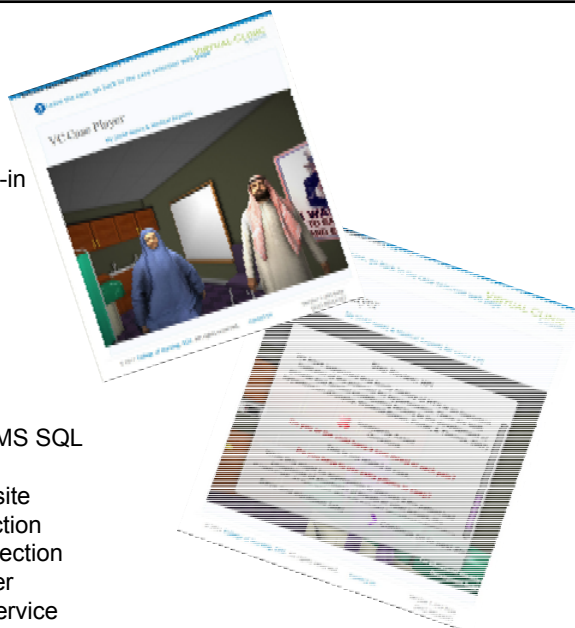
VC Components: Technical

Front End

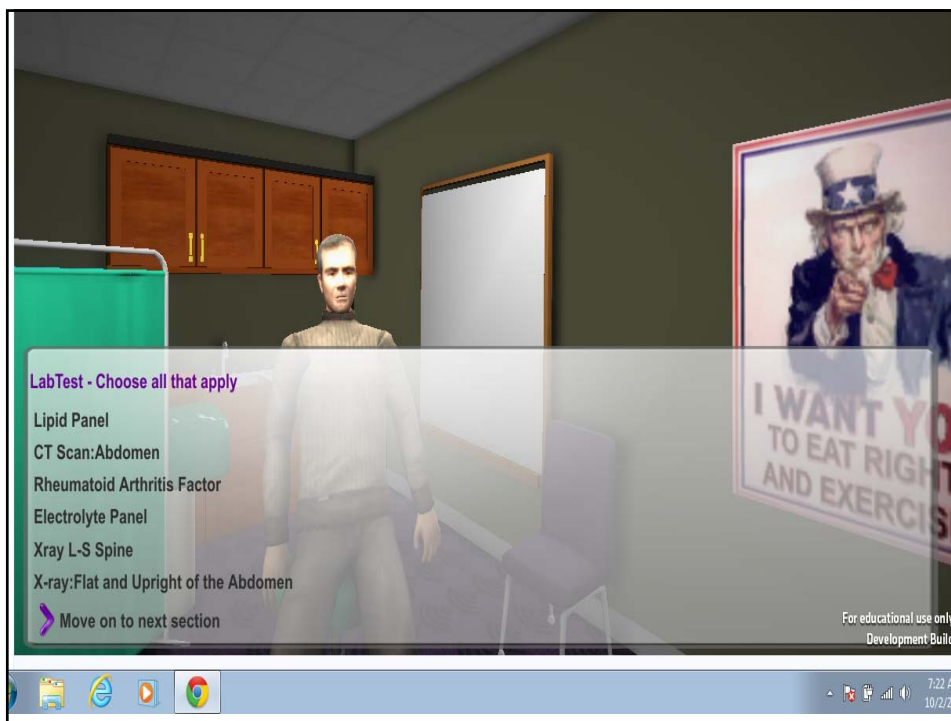
- Unity 3D engine/web plug-in
- IVONA text-to-speech engine
- Models
- Rocket box
- Mixamo animations
- MS Kinect

Back End

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

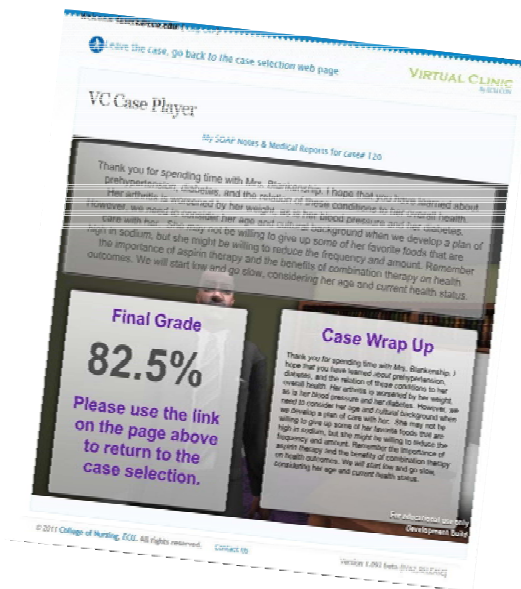


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Directions

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



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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

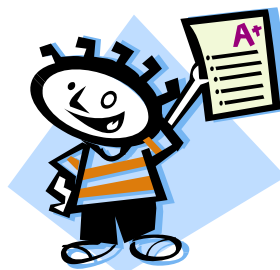


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Student Feedback

- “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”

We like it!



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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

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