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 RUSH MEDICAL COLLEGE • COLLEGE OF NURSING • COLLEGE OF HEALTH SCIENCES • THE GRADUATE COLLEGE

Illustrating the Addition of a Genetics Module to a Diagnostics Class for Advanced Practice Registered Nurses

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Egypt Divided / Pot's Big Moment / Best of 2012

TIME

Want to Know My Future?



New genetic tests can point to risks—but not always a cure
 BY SHONNE ROCHMAN

Department of Preventive Medicine Grand Rounds

"Personalized Medicine – was it the gene or the donuts that Mom gave me that increased my cholesterol?"

Presented by
Annabelle S. Volgman, MD FACC
 Professor of Medicine
 Rush College of Medicine
 Medical Director
 Rush Heart Center for Women

Tuesday, December 18, 2012
 Noon - 1:00 pm; Rush University Medical Center

Survey of Nursing Integration of Genomics Into Nursing Practice

1. Kathleen A. Calzone PhD, RN, APNG, FAAN¹,
2. Jean Jenkins PhD, RN, FAAN²,
3. Jan Yates PhD, RN³,
4. Georgie Cusack MS, RN, AOCNS⁴,
5. Gwenyth R. Wallen PhD, RN⁵,
6. David J. Liewehr MS⁶,
7. Seth M. Steinberg PhD⁷,
8. Colleen McBride PhD⁸

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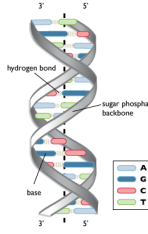
MSN & DNP ESSENTIALS

GENETICS

- The master's-degree program prepares the graduate to:
 Synthesize...principles of genetics and genomics (AACN, 2011)
- Current concepts of...determinants of health...guide the practice of DNP graduates (AACN, 2006)

DEVELOPMENT OF A GENETICS MODULE

- Unlikely current graduate students have much foundational genetic content as an undergraduate student
- Consulted with a genetics expert (Member of ISONG – **International Society of Nurses in Genetics**)



CURRENT USE OF GENETIC TESTING

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- Diagnose specific diseases
- Identify patients at increased risk of a disease
- Advise treatment
- Referral as needed

GENETICS MODULE

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The Genetics module is actually one module in the “Diagnostics for the Advanced Practice Nurse” course. The other modules are:

1. Critical Thinking and Decision Making, Quality Assurance, Imaging
2. Laboratory Statistics and Hematology
3. Renal/Urine
4. Cardiopulmonary
5. Blood Chemistries
6. Diagnosis of Infectious Disease

GENETICS MODULE OVERVIEW

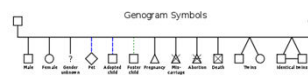
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- Use of genetic testing in the clinical arena (across the lifespan)
- Increasing use of genetic testing
- Advising patients on genetic tests
- Ordering genetic testing
- Predisposition to diseases based on genetic/genomic risk factors
- Terminology associated with genetic testing

GENETICS MODULE OBJECTIVES

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- Be familiar with genetic definitions
- Create a family health history
- Describe types of genetic tests at different age groups
- Incorporate genetics into your diagnosis plan
- Describe the impact of genetic testing and genetic diagnosis
- Discuss the current psychosocial, ethical, and medical issues of genetic testing



ASSIGNMENTS/EVALUATION

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- Listen to narrated power point presentations
- Review material in module folder.
- Construct a three generation family history standard pedigree nomenclature recognizing within family history red flags for genetic/genomic conditions. This can be of your own family or of a family you know. Do not include any identifying information on this genogram. You do need to include age but do not include date-of-birth
- Discussion
- Exam questions

POWERPOINT PRESENTATIONS

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- [Basic Genomics Review](#)
- [Meiosis and Mitosis Review](#)
- [Family Health History](#)
- [Genetic Testing Adult](#)
- [Genetic Testing Newborn](#)
- [Genetic Testing Pediatric](#)
- [Genetic Testing Prenatal](#)
- [Genetic Factors in Chronic Diseases](#)

GENETIC TESTING VIDEO LINK

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[Cascade Genetic Testing
http://www.youtube.com/watch?v=lhcpTR7zIN0&feature=youtu.be](http://www.youtube.com/watch?v=lhcpTR7zIN0&feature=youtu.be)

LEVELS OF EVIDENCE WEB LINK

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Public Health Genomics and Genetic Testing:
Levels of Evidence
<http://www.cdc.gov/genomics/gtesting/tier.htm>

UNIFORM SCREENING PANEL DOCUMENT

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Uniform Screening Panel

NIH PAMPHLET ON GENETIC TESTING

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NIH Pamphlet on Genetic Testing
[Genetic Testing –What It Means For Your Health](#)

NUTRIGENETIC TESTING

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Nutrigenetic Testing
[Nutrigenetic Testing_GAO](#)

PARENS & ASCH'S BOOK

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Book that May be of Interest:
Parens, E. and A. Asch, Eds. (2000).
[Prenatal testing and disability rights.](#)
Washington DC, Georgetown University Press.

DISCUSSION ASSIGNMENT

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- In the Discussions section of the course, students were asked to post what kind of experience they have had with genetic testing.
- If they have worked with a patient or know somebody that has had genetic testing, they were asked to post what the genetic test was, the interpretation of the test and what were the psychosocial implications of that test for the patient and their family.
- If they have not worked with a patient or don't know anybody that has had genetic testing, they are to select a genetic test that is of interest to them and discuss how the test is done, how the test is interpreted and to discuss what they think the psychosocial implications of that test might be for that patient.

STUDENT DISCUSSION TOPICS

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- The discussions included reports from students on such topics as:
- Cystic fibrosis screening prenatally
 - Huntington's Disease
 - Factor V
 - Quadruple Screen

DISCUSSION EXAMPLE

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"My experience with genetic testing begins with the quadruple (quad) screen. The quad screen is a prenatal screening obtained through blood work in the second trimester of pregnancy. It includes maternal serum alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), unconjugated oestriol, and inhibin A. A high result indicates that the fetus has a high risk of having chromosomal abnormalities. The quad screen has an 81% detection rate and 5% false positive rate (Lao et al., 2009)....."

DISCUSSION EXAMPLE

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"Sickle Cell Experience"

CONCLUSION

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- Number of genetic tests will explode
- Consumer genetic tests available
 - Certainty does not always exist
 - Chronic tests – lack of specificity
 - Can be waste of time, money and source of anxiety
- APRNs need to be able to answer questions that patients have regarding genetic testing

Journal of Nursing Scholarship
 Genomic Nursing Webinar Series
<http://www.genome.gov/27552312#al-2>