

School of Nursing

Course Code : BSCN2002

Course Name: PPG

(GENETICS)

PRACTICAL APPLICATION OF GENETICS IN NURSING

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Program Name: B.Sc. Nursing

GENETICS

- Genetics is the study of inheritance of diseases in families, mapping of diseased genes to specific locations on chromosomes, analysis of molecular mechanisms through which gene cause disease and the diagnosis and treatment of genetic diseases.

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APPLICATION OF GENETICS IN NURSING PRACTICE

It includes:

1. Understanding of disease process
2. Genetics and health assessment
3. Prevention of genetic diseases
4. Effective disease treatment
5. Link between patient and healthcare services
6. Understanding of new technologies and treatments of gene based health care.

1. UNDERSTANDING OF DISEASE PROCESS

- Genetic diseases make up a large proportion of total disease burden in pediatric populations. This population will continue to grow as our understanding of the genetic basis of disease grows.
- Provides basics for understanding the fundamental biological makeup of an organism which leads to better understanding of genetic disease process.

CONTD.

- Integrating genetics to nursing practice includes a philosophy of care that recognize when genetic factors are playing or could play role in an individual's health.
- Using family history and the result of genetic tests effectively, informing patients about genetic concepts, understanding the personal and societal impact of genetics information, valuing privacy and confidentiality of genetics information.

2. GENETICS AND HEALTH ASSESSMENT

- Genetics related health assessment always includes determining a patient's or family's understanding of actual and potential health concerns related to genetics and understanding how these issues are communicated with in the family:
 - Family history assessment
 - Ancestry and ethnicity assessment
 - Physical assessment
 - Psychosocial assessment

3. PREVENTION OF GENETIC DISEASES

- Individual at risk of genetic diseases will be identified and treated before they become patient through presymptomatic therapy.
- This is new medical paradigm forecast by human genetics and genome science. Eg: Use of cholesterol lowering drugs to prevent cardiac and cerebro-vascular occlusion.
- Lipids, lipoprotein and genetic diagnostic markers can reliably identify individuals at risk of vascular occlusion.
- The widespread DNA based diagnostic tests measure pathological changes like pap smear, cranial magnetic rasonance imaging.

4. EFFECTIVE DISEASE TREATMENT

- Today rapid progress in molecular genetics, gene therapy and genome science will provide an increasing list of therapeutic targets.
- New genetic information will also accelerate the development of improved drugs and protein replacement through gene therapy.

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5. LINK BETWEEN PATIENT AND HEALTHCARE SERVICES

- Nurses facilitate communication among family members, the health care system and community resources, they offer valuable support by virtue of their continuity of care with patients and families.

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6. UNDERSTANDING OF NEW TECHNOLOGIES AND TREATMENTS OF GENE BASED HEALTH CARE.

- To meet the challenges of genomic medicine, nurses need to understand the new technologies and treatments of gene based health care.
- Nurses must learn to recognize patterns of inheritance when obtaining family and medical histories and understand when it is appropriate to consider new gene based testing and treatment options.

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OTHERS

- Genetic counselling
- Social and ethical issues

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REFERENCES

- ◉ Sharma Suresh K- Textbook of Pharmacology, Pathology and Genetics for Nurses (2 Volumes), 2016, Jaypee Brothers Medical Publishers.

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THANK YOU

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