NR503 Mid-term study guide filled in

Population Health, Epidemiology & Statistical Principles (Chamberlain University)

NR503: Mid-term study guide

Week 1 Summary & Key points:

1. It is vital to connect **social justice theory** to advocacy, health disparities and to outcomes.
2. How are **outcomes** determined?
3. Where can morbidity, mortality, incidence and prevalence data be found at the state and national level?
    a. State Department of health website; NCCDPHP
        i. (NCCDPHP) The CDC's National Center for Chronic Disease Prevention and Health Promotion consists of nine divisions that support a variety of activities that improve the nation's health by preventing chronic diseases and their risk factors
        ii. National, state, and community levels
    b. CDC, the National Center for Health Statistics (NCHS) is considered the nation's principal health statistics agency
    c. CDI - 97 indicators
4. How does social justice and health inequities influence population health care provision?
5. Why is this critical information for the provision of evidence-based care?
6. Are you able to both define and apply key terms, such as: vital statistics, morbidity, mortality, cases, social justice, epidemiology, population health, incidence, prevalence, outcomes, inter-professional collaboration, HP2020, determinants of health, risk analysis?
7. What is the Campaign for Action?
8. Explain the differences between primary
    a. **Primary** prevention refers to preventing disease before it occurs. (prevention and planning) Usually, primary prevention occurs through application of epidemiological concepts and databases to assess risk factors and then target those populations in which there can be the greatest impact on outcomes to ward off impending disease or unhealthy outcomes. For example, if the APN has assessed epidemiological data and observes that there is a high incidence and prevalence of lung cancer in those individuals and populations who smoke before the fifth grade, then this epidemiological data can be the basis for planning a smoking cessation educational program for school-age children before the fifth grade.
    b. **Secondary -** Secondary prevention consists of screening and diagnosis of disease. Secondary prevention is one of the most cost-effective strategies to improve current health status and prevent chronic, debilitating disease states through screening of individuals and populations. For example, screening helps APNs detect a disease once it is present and assist and facilitate the patient or population to get care for the disease that has been detected. The APN must be knowledgeable and apply standards of care and accepted national clinical guidelines to advise the individual or population to undergo preventive screening that is age appropriate and developmentally appropriate
    c. **Tertiary** intervention - Tertiary prevention consists of interventions aimed at interventions to facilitate the rehabilitation of the patient to the highest level of functioning while addressing the risk factors that could further result in the deterioration of the patient's health. For example, an APN would counsel a patient who has had a myocardial infarction about the risk factors that could elicit further debilitation. The client may be encouraged to lose weight and commit to an appropriate exercise program while being closely monitored for cholesterol levels, and so on. Certainly a cardiac rehabilitation program could be of value to this patient. As stated above, accepted national clinical guidelines should be utilized as a benchmark for this follow-up care

Week 2 Summary & Key points:

1. In conclusion, the control of infectious disease presents a challenge to the APN on many fronts. The ability to provide effective population-based interventions, in addition to fulfilling legal obligations, can have a profound positive impact on the nation's health.
2. Screening/diagnostic tools are often created for population specific use; for instance, gender, age, culture.
3. Screening/diagnostic tools should be tested and have available statistics that speak to their specificity, sensitivity, and positive predictive value.
4. Descriptive epidemiology: Did you see this definition on the CDC web site ...these elements connect to understanding causation:
5. https://www.cdc.gov/ophss/csels/dsepd/ss1978/lesson1/section6.html (Links to an external site.)Links to an external site.
6. The 5W's of descriptive epidemiology:
    a. What = health issue of concern
    b. Who = person
    c. Where = place
    d. When = time
    e. Why/how = causes, risk factors, modes of transmission
7. Is screening a tertiary intervention? If yes, why, if not, what is it?
8. How does a provider determine the usefulness, appropriateness, of a screening test? Where would a NP look to find a screening test? What determines if a screening test should be used?
9. Can you explain what "descriptive epidemiology" means? What is the purpose? How is it used?
10. How are causation and descriptive epidemiology related, how do they work together to aid evidence-based care?
11. What does "causation" mean? Can you relate causation to primary, secondary and tertiary interventions?

Week 3 Summary & Key points:

(Review Table 4.2 in your text on strengths and weaknesses of study designs. For example, what is the best fit for studying **association**? Which study is typically least expensive and shorter? What are study methods?)

1. The Randomized Control Trial is the gold standard for research, and it utilizes intervention testing.
2. Case-control designs
3. Cohort study designs

Consider, recruitment methods, costs of study, retrospective versus prospective analysis results, bias (systematic errors (information bias, etc.), errors (random and systematic), data collection, causality, scientific misconduct (fraud). (See table 4.2 in your text on strengths and weaknesses of study designs.)

1. What is a case-control study and how does it differ (or how is it the same) as the cohort study design?
2. Can you talk about the ways bias shows up in a study design (such as, selection bias) etc.?
3. What is different in a randomized control trial than, for instance, a case-control study (or a cohort study)? What does it mean to show a causal relationship?
4. What is each type of study used for, its purpose, and its outcomes? How are the outcomes different in each study design? Measured?
5. What is an intervention group? Where is it found?
6. Can you explain a retrospective versus a prospective study design? What are the pros and cons of each?
7. How are groups selected for each of the study designs?
8. What is meant by "scientific misconduct"?

9. Differentiate: random error, systematic error, confounding error.

Week 4 Summary & Key points:
This week there was a web site exploration activity involving the IHI, Campaign for Action and IHI Triple Aim. These web sites presented information regarding population health outcomes and health care economics. Inter-professional collaboration was addressed in the Campaign for Action site.

1. What is the Research Pyramid demonstrating the levels of evidence? Where does the RCT fit? Why?
2. Quality of Care Outcomes: Examples: Decrease in incidence (new cases), reduction in mortality rates, access to primary care measures, satisfaction measures, daily demand and supply

1. **Epidemiology** is the science of public health.
   - Epidemiology is the study of disease distribution within populations and the risk factors that affect increases or decreases in distribution. These factors might be genetic, environmental, social, cultural, or based on some direct action by the individual. The science of epidemiology serves first to find out the "why" of disease and then to analyze these factors for recommendations in disease screening, treatment, prevention, and monitoring.
2. **Population health** focuses on risk, data, demographics and outcomes.
3. **Outcomes** is the end result that follows an intervention.
4. **Aggregate** is a defined population.
5. **Community** is composed of multiple aggregates.
6. **Data** is compiled information.
7. **Prevalence** measures the existence of a disease. Measures the number of all cases of a disease or attribute in a population at a given time.
8. **Incidence** measures the appearance of a disease. Measures the occurrence of new events in a population over a period of time.
9. **Surveillance** is the collection, analysis, and dissemination of data.
10. **High-risk** is an increased chance of poor health outcome.
11. **Morbidity** is the presence of illness in a population.
12. **Mortality** is related to the tracking deaths in an aggregate.
13. **Vital statistics-**statistics on live births, deaths, fetal deaths, marriages and divorces.
14. **Cases**- set of criteria used in making a decision as to whether an individual has a disease or health event of interest
15. **Social Justice-** the view that everyone deserves equal rights and opportunities —this includes the right to good health.
16. **Inter-professional collaboration-** The idea of sharing and implies collective action oriented toward a common goal, in this case, improving the quality and safety of patient care. It involves responsibility, accountability, coordination, communication, cooperation, assertiveness, mutual respect, and autonomy.
17. **HP2020-** aims to reach four overarching goals: 1.Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death, 2. Achieve health equity, eliminate disparities, and improve the health of all groups 3.Create social and physical environments that promote good health for all. 4. Promote quality of life, healthy development, and healthy It is the number of true negatives divided by all of those who tested negative behaviors across all life stages.
18. **Determinants of Care-** The range of personal, social, economic, and environmental factors that influence health status are known as determinants of health.
19. **Risk analysis-** the characterization of the potential adverse health effects of human exposures to environmental hazards.
20. **Health disparities-** the difference in health statuses between various groups (populations).
21. **Sensitivity-** measures the proportion of actual positives that are correctly identified as such (e.g., the percentage of sick people who are correctly identified as having the condition)

22. **Specificity-** (also called the true negative rate) measures the proportion of actual negatives that are correctly identified as such (e.g., the percentage of healthy people who are correctly identified as not having the condition)

23. Positive Predictive Value- Positive predictive value is the probability that subjects with a positive screening test truly have the disease

24. Epidemiological Triangle- A traditional model of infectious disease causation, known as the Epidemiologic Triad is depicted in Figure 2. The triad consists of an external agent, a host and an environment in which host and agent are brought together, causing the disease to occur in the host.

1. The triad of any disease includes the host, agent, and environment. Environmental factors include factors such as individual's home, stress level, diet, and more. Genetics also plays a strong role in disease occurrence. Disease can be transmitted either directly or indirectly. Infected individuals can have outright symptoms or subclinical disease, making the transmission of the disease more difficult to detect.

25. Confounding (Variables)- A confounding variable is an “extra” variable that you didn’t account for. They can ruin an experiment and give you useless results. They can suggest there is correlation when in fact there isn’t. They can even introduce bias. That’s why it’s important to know what one is, and how to avoid getting them into your experiment in the first place.

26. Study Methods-

1. **Descriptive**-
    a. describes person place and time. Provided data for program planning, resource planning, and generates a hypothesis. Types include correlational studies, case reports and studies, and cross-sectional studies.
2. **Analytic-** consists of observational and experimental.
    a. Observational include case control and cohort.
3. **Experimental** includes random control trial (typically for new drug testing), field trial (conducted on those who have a high risk of obtained a disease), and community trial (research is conducted on an entire community or neighborhood). Test a hypothesis.

27. Rapid Cycle Improvement Models- Rapid-cycle improvement is a "quality improvement method that identifies, implements and measures changes made to improve a process or a system."1 Rapid-cycle improvement implies that changes are made and tested over periods of three or months or less, rather than the standard eight to twelve months. It consists of fours stages:

Plan: Identify an opportunity to improve and plan a change or test of how something works**.**

Do: Carry out the plan on a small number of patients. The test period may be as short as one day for small PDSA cycles.

Study: Examine the results. Did you achieve your goals?

Act: Use your results to make a decision, incorporate changes into your workflow, and establish future quality improvement plans

28. **Is screening a tertiary intervention? If yes, why, if not, what is it?**

No, it is secondary.

29. **How does a provider determine the usefulness, appropriateness, of a screening test?**

1. Screening and diagnostic tests are important, but are not always 100% accurate in confirming a diagnosis. How do we distinguish which tests are good to use? Even if a test identifies a disease, we must ask the following.
2. Is it valid?
    a. The **validity** of any screening test is the ability of that test to distinguish correctly who has a disease.
    b. Validity is based in both the specificity and sensitivity
        i. ***specificity*** (the ability of a test to correctly identify those who do not have the disease) and

ii. ***sensitivity*** (the ability of a test to correctly identify those who have a disease).
c. SENSITIVITY = Those who are TRUE POSITIVES/ TRUE POSITIVES + FALSE NEGATIVES
d. SPECIFICITY = Those who are TRUE NEGATIVES/TRUE NEGATIVES + FALSE POSITIVES

3. Is it reliable?
4. Is it cost effective?
5. Does it assist us in improving outcomes for the patient (i.e., improved quality of life, more life years lived, etc.)?
6. **Continuous variable screenings** are those that are not either positive or negative, but occur on a continuum of values, such as blood glucose or hemoglobin levels. In that case, a population "normal" is often established as a range of normal values. People with a disease are often considered positive when they have a specific value or level to their screening tests, such as the diagnosis of diabetes with a hemoglobin A1c of > 6.5%.
7. Often, the **first** test is more **sensitive**, and the **second** test is more **specific**.
8. **Positive predictive value (PPV)** is a proportional value of the proportion of people in any given population who are screened as positive and who actually have the disease.
    a. PPV is the number of true positives divided by everyone who tested positive.
9. **Negative predictive value (NPV)** is also a proportion, but is the opposite (and the probability that a result is a true negative).
    a. It is the number of true negatives divided by all of those who tested negative.

Where would and NP look to find a screening test? What determines if a screening test should be used?

Determining whether a screening test is appropriate requires the APRN to address several aspects of the disease of interest. The target population needs to be identifiable. There should be enough people to make the study cost effective. The preclinical period should be proficient to allow treatment before symptoms appear so that early diagnosis and treatment make a difference in terms of outcomes. The NP could look at the U.S. Preventative Services Task Force, Agency for Healthcare Research and Quality, and SAMHSA-HRSA to find a screening test. Sensitivity and specificity measure the validity of a test. Sensitivity is the number identified/ the number affected. Specificity is the number identified in the screening of not having the disease/ the actual number who do not have the disease.

30. **Can you explain what "descriptive epidemiology" means? What is the purpose? How is it used?**

1. Called Natural history of disease defines differences, similarities, and correlation keys of any health problem
2. It covers time place and person - main components
3. First, by looking at the data carefully, the epidemiologist becomes very familiar with the data. He or she can see what the data can or cannot reveal based on the variables available, its limitations (for example, the number of records with missing information for each important variable), and its eccentricities (for example, all cases range in age from 2 months to 6 years, plus one 17-year-old.).
4. Second, the epidemiologist learns the extent and pattern of the public health problem being investigated — which months, which neighborhoods, and which groups of people have the most and least cases.
5. Third, the epidemiologist creates a detailed description of the health of a population that can be easily communicated with tables, graphs, and maps.
6. Fourth, the epidemiologist can identify areas or groups within the population that have high rates of disease. This information in turn provides important clues to the causes of the disease, and these clues can be turned into testable hypotheses.

31. **How are causation and descriptive epidemiology related, how do they work together to aid evidence-based care?**

Causation helps look at the cause of the issue or disease process. Descriptive epidemiology focuses on the person, place, and time. An example of how they are intertwined might be a person who was sick from E. Coli. The physician might look at what the individual ate to determine what made them sick. For instance, they may have decided to eat from the salad bar at a local restaurant.

32. **What does "causation" mean? Can you relate causation to primary, secondary and tertiary interventions?**

Causation is an increase in a casual factor or exposure causes an increase in the outcome of interest (disease). Causation related to primary intervention could be the use of flu vaccines yearly to prevent the flu from causing an illness. A secondary intervention would be to test for the influenza virus in a patient. A tertiary intervention would be giving Tamiflu to a flu positive patient. Since we know that the influenza virus causes the flu when can help to perform actions against it.

33. **Are you able to discuss "surveillance" and its relationship to "causation"?**

1. Surveillance is the ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice closely integrated with the timely dissemination of these data to those who need to know. Passive surveillance involves using data to look at reportable diseases while active involves using individuals such as project staff interviewing physicians about cases. Using surveillance can help identify the causation of diseases particularly in a specific population.
2. Active surveillance - case by case basis each specific person's information is entered into database
3. Passive surveillance - where information is pulled from a database.
4. Ten elements of surveillance:
    a. Mortality
    b. Morbidity
    c. Epidemic reporting
    d. Individual case investigation
    e. Surveys
    f. Epidemic field investigation
    g. Utilization of biological agents and rugs
    h. Distribution of animals/reservoirs/vectors
    i. demographic/environmental data

34. **What is the case-control study and how does it differ (or how is it the same) as the cohort study design?**

The cohort study design identifies a people exposed to a particular factor and a comparison group that was not exposed to that factor and measures and compares the incidence of disease in the two groups. A higher incidence of disease in the exposed group suggests an association between that factor and the disease outcome. This study design is generally a good choice when dealing with an outbreak in a relatively small, well-defined source population, particularly if the disease being studied was fairly frequent.

The case-control design uses a different sampling strategy in which the investigators identify a group of individuals who had developed the disease (the cases) and a comparison of individuals who did not have the disease of interest. The cases and controls are then compared with respect to the frequency of one or more past exposures. If the cases have a substantially higher odds of exposure to a particular factor compared to the control subjects, it suggests an association. This strategy is a better choice when the source population is large and ill-defined, and it is particularly useful when the disease outcome was uncommon. Examples of two real outbreaks will be used to illustrate these differences in sampling strategy.

35. **Can you talk about the ways bias shows up in a study design (such as, selection bias) etc?**

Selection bias occurs when subjects in a sample are not representative of the population of interest. For example, selecting only males for a study is not representative of the whole population. Informational bias can

occur when information is not complete or may be inaccurate. For example, blood pressure reading taken from cuffs that are too small.

36. **What is different in a randomized control trial than, for instance, a case-control study (or a cohort study)? What does it mean to show a causal relationship?**

Case control studies are studies in which patients who already have a specific condition are compared with people who do not have the condition. The researcher looks back to identify factors or exposures that might be associated with the illness. They often rely on medical records and patient recall for data collection. These types of studies are often less reliable than randomized controlled trials and cohort studies because showing a statistical relationship does not mean than one factor necessarily caused the other.

Randomized controlled clinical trials are carefully planned experiments that introduce a treatment or exposure to study its effect on real patients. They include methodologies that reduce the potential for bias (randomization and blinding) and that allow for comparison between intervention groups and control (no intervention) groups. A randomized controlled trial is a planned experiment and can provide sound evidence of cause and effect.

A cause relationship means that a cause is linked to the effect. Such as smoking causes increased blood pressure and the effects of increased blood pressure is heart disease.

37. **What is each type of study used for, its purpose, and its outcomes? How are the outcomes different in each study design? Measured?**

Case-control studies are studies in which patients who already have a specific condition are compared with people who do not have the condition. The researcher looks back to identify factors or exposures that might be associated with the illness. They often rely on medical records and patient recall for data collection. These types of studies are often less reliable than randomized controlled trials and cohort studies because showing a statistical relationship does not mean than one factor necessarily caused the other.

Pros:

1. They are relatively inexpensive.
2. They are easy to conduct
3. They work well for investigating outbreaks or rare diseases (Lewallen & Courtright, 1998).

Cons:

1. The drawbacks to case-control design is they do not have the level of control, randomization, and nor a specific intervention and thus the level of evidence is not as high as an RCT.
2. They also are subject to confounding variables such as dose of exposure or environmental factors, which can alter interpretation, and the researcher conducting the research may find it difficult to establish a clear time line from the exposure to development of disease symptoms.
3. One of the most significant case-control research studies ever conducted was the one linking lung cancer to smoking by Richard Doll and Bradford Hill, published in the British Medical Journal in 1950. You can see the original publication if you follow the reference link below.

Cohort studies identify a group of patients who are already taking a particular treatment or have an exposure, follow them forward over time, and then compare their outcomes with a similar group that has not been affected by the treatment or exposure being studied. Cohort studies are observational and not as reliable as randomized controlled studies, since the two groups may differ in ways other than in the variable under study.

Randomized controlled clinical trials are carefully planned experiments that introduce a treatment or exposure to study its effect on real patients. They include methodologies that reduce the potential for bias (randomization and blinding) and that allow for comparison between intervention groups and control (no intervention) groups. A randomized controlled trial is a planned experiment and can provide sound evidence of cause and effect.

Cross-sectional studies describe the relationship between diseases and other factors at one point in time in a defined population. Cross sectional studies lack any information on timing of exposure and outcome relationships and include only prevalent cases. They are often used for comparing diagnostic tests. Studies that show the efficacy of a diagnostic test are also called prospective, blind comparison to a gold standard study. This is a controlled trial that looks at patients with varying degrees of an illness and administers both diagnostic tests — the test under investigation and the "gold standard" test — to all of the patients in the study group. The sensitivity and specificity of the new test are compared to that of the gold standard to determine potential usefulness.

38. **What is an intervention group? Where is it found?**
The intervention group is the group in a randomized control trial that receives the treatment.
39. **Can you explain a retrospective versus a prospective study design? What are the pros and cons of each?**
Prospective

A prospective study watches for outcomes, such as the development of a disease, during the study period and relates this to other factors such as suspected risk or protection factor(s). The study usually involves taking a cohort of subjects and watching them over a long period. The outcome of interest should be common; otherwise, the number of outcomes observed will be too small to be statistically meaningful (indistinguishable from those that may have arisen by chance). All efforts should be made to avoid sources of bias such as the loss of individuals to follow up during the study. Prospective studies usually have fewer potential sources of bias and confounding than retrospective studies.
Pros- High Quality Data, Future Proof, Strong Validity, Cons- Expensive and time consuming.

A retrospective study looks backwards and examines exposures to suspected risk or protection factors in relation to an outcome that is established at the start of the study. Many valuable case-control studies, such as Lane and Claypon's 1926 investigation of risk factors for breast cancer, were retrospective investigations. Most sources of error due to confounding and bias are more common in retrospective studies than in prospective studies. For this reason, retrospective investigations are often criticized. If the outcome of interest is uncommon, however, the size of prospective investigation required to estimate relative risk is often too large to be feasible. In retrospective studies the odds ratio provides an estimate of relative risk. You should take special care to avoid sources of bias and confounding in retrospective studies.
Pros: Inexpensive, Quick Results-------Cons- Missing Data (potential bias), definitions adapted to bias, Unmeasured confounder (Afterthoughts)

40. **How are groups selected for each of the study designs?**
Case- Control- Used to study rare diseases. Used to study multiple exposures that may have a single outcome. Participants are selected based on outcome status. **Case**- subjects have the outcome of interest. **Control-** subjects do not have the outcome of interest. Used when the outcome of interest is rare, multiple exposures may have a single outcome, and funding or time is limited.
Cohort- A well-defined group of individuals who share a common characteristic or experience. Participants classified according to exposure status and followed-up over time to ascertain outcome. Can be used to find multiple outcomes from an exposure. Appropriate for rare exposures or defined cohorts. Ensures temporality (exposure occurs before observed outcome). Used when an exposure is rare and outcome is common (agricultural pesticide and cancer). Used to learn about multiple outcomes from a single exposure (health effects of a nuclear power plant exposure).

Randomized Control Trial- is a type of scientific (often medical) experiment which aims to reduce bias when testing a new treatment. The people participating in the trial are randomly allocated to either the group receiving the treatment under investigation or to a group receiving standard treatment (or placebo treatment) as the control. Randomization minimizes selection bias and the different comparison groups allow the researchers to determine any effects of the treatment when compared with the no treatment (control) group, while other variables are kept constant. The RCT is often considered the **gold standard for a clinical trial**. RCTs are often used to test the efficacy or effectiveness of various types of medical intervention and may provide information about adverse effects, such as drug reactions. Random assignment of intervention is done after subjects have been assessed for eligibility and recruited, but before the intervention to be studied begins
Cross- Sectional- To learn about the characteristics of a population at one point in time like a snapshot (photo). No comparison group. All members of a small, defined group or a sample from a large group. Produces estimates of the prevalence of the population characteristic of interest. Example is measuring the magnitude and patterns of violence among pregnant women. Used to:

1. Estimate prevalence of a health condition or prevalence of a behavior, risk factor, or potential for disease
2. To learn about characteristics such as knowledge, attitude and practices of individuals in a population
3. To monitor trends over time with serial cross-sectional studies

41. **What is meant by "scientific misconduct"?**

Scientific misconduct is the violation of the standard codes of scholarly conduct and ethical behavior in the publication of professional scientific research. Its an action that willfully compromises the integrity of scientific research, such as plagiarism or the falsification or fabrication of data. It includes gift authorship, data fabrication and falsification, plagiarism, and conflict of interest.

42. **Differentiate: random error, systemic error, confounding error.**

1. Random error measurements tend to be too high or too low in equal amounts do to random factors. And are less serious than bias. They can occur from an unpredictable change in an instrument used for collecting data. Less likely to skew data
2. Systemic error- This can include selection bias based on the individuals selected for a study and the way groups in the study are selected. It can also include information bias were information tends to be incomplete or inaccurate and tends to lead a study in a certain direction.
3. Confounding error- occurs when it appears that a true association exists between and exposure and outcome, but in reality , this association is confounded by another variable or exposure.

43. **What is the highest level of data findings? How is evidence appraised?**

Level I- Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results. Levels of evidence (sometimes called hierarchy of evidence) are assigned to studies based on the methodological quality of their design, validity, and applicability to patient care.

44. **Can you describe the various levels of studies and how they are rated in terms of their use for integration into practice?**

45. **What factors determine quality of care?**

Effectiveness, patient safety, timeliness, and patient centeredness.

46. **How is a websites credibility determined?**
The medical library association, the Health on the Net Foundation, and the US National Library of Medicine provide guidelines for evaluation online information.
Who runs the site?
Why have they created the site?
Who is sponsoring the site? Does the information favor the sponsor?
Where did the information come from? Is the information sponsored by experts?
Is it up to date?
What is the privacy policy?

47. **What are key indicators when assessing a model of care?**
Pain Management
Consistency of communication
Staff Mix
Client satisfaction
Prevention of Tobacco Use
Cardiovascular disease Prevention
Caregiver Activity
Identification of Primary Caregiver
Activities of Daily Living
Independent Activities of Daily Living
Psychosocial interaction

48. **How would you explain the Triple Aim Initiative (model) to a colleague?**
The Triple Aim for Populations seeks to reduce the cost per capita of care, improve the health of population, and enhance patient experience and outcomes
49. **How does social justice and health inequalities influence population health care provision? Why is this critical information for the provision of evidence-based care?**
Social justice speaks to equal health care and the quality of healthcare to all individuals. If social justice is not performed them population health care will not be adequate. If all individuals are not provided with equal opportunity to
50. **What is the Campaign for Action?**
The Campaign for Action was established as a movement to utilize medical professionals, specifically nurses, within an interdisciplinary network to increase overall satisfaction with their medical care (Campaign for Action, n.d.). This campaign was initiated to mobilize the concept of interdisciplinary care within the healthcare realm to assist patients in a holistic approach to ensure positive patient outcomes. One initiative of this campaign is to double the number of nurses with their DNP by the year 2020 (Campaign for Action, n.d.). By utilizing DNPs, this increases the overall reach of medical professionals to the public as well as diversify the field, encourage leadership within nursing, and assisting with continued nursing education (Campaign for Action, n.d.). By reaching the public through various means, this increases the well-being of the overall population's health and establishes primary care to assist with preventative measures. Through education, patients will be able to take control of their personal health and take the appropriate steps for themselves and their family to maintain a healthy, robust life.
51. Explain the difference between primary, secondary, and tertiary care.
Primary care is things done to help prevent the disease from happening. This could include laws to prevent certain things from happening or vaccines to prevent a disease. Secondary care involves screening for a disease. This might include a health screening or psychological screening to determine if an individual has a particular disease process. Tertiary care involves managing the symptoms of a disease. This might include a cardiac diet for those with heart disease.

52. Internal validity - measure what supposed to measure
53. External validity - generalizability
54. Probability - study of laws of chance
55. Gold standard - test with 100% sensitivity and specificity
56. Clinical significant - referring results that have clinical significance
57. Likelihood ratio - combines sensitivity and specificity data to help clinician quantify how much the odds of disease change based on positive or negative results.
58. Infectious disease: goal is to disrupt the chain of infection.
59. Hierarchy of evidence:

60. Causation: 4 types of causal relationships involving necessary and sufficient:
    1. Necessary - disease will occur only if the factor is present
    2. Sufficient - exposure always leads to disease
    3. Types:
        a. Necessary but not sufficient: More than one factor is required, usually in a temporal sequence. The initiation and promotion stages associated with carcinogenesis models examples of this type of causal relation. For example, when considering tuberculosis, the tubercle bacillus is a necessary factor, but even its presence may not be sufficient to produce the disease in every individual.
        b. Sufficient but not necessary: A specific factor can cause a disease process, but other factors by themselves can cause the same disease. For example, vitamin B12 deficiency can cause anemia, but other factors can result in anemia as well.
        c. Neither sufficient nor necessary: A specific factor can be combined with other factors to produce disease. However, the disease may be produced even in the absence of the factor.
    4. <u>The best way to establish causations is through observations of actual humans who have a trait, factor, exposure, and so on.</u>
    5. You will recall that for a causal relationship to be necessary and sufficient, a factor must be present for a disease to develop.
        a. In the necessary but not sufficient causal relationship, there are several factors and each can cause disease but not on its own or in small amounts.

    b. In sufficient but not necessary causation, a single factor alone could produce the disease, but so could others.
    c. Finally, in the neither sufficient nor necessary causal relationship, a factor is not sufficient, nor is it required to cause a disease
6. How to establish causation these 6 things must occur:
    a. Temporal relationship: The associated factor must be present before the disease.
    b. Strength of association: This is the odds ratio or relative risk. The higher or stronger the relationship, the more likely it is causal.
    c. Dose-response relationship: As the dose increases, so does the risk of development of the disease.
    d. Replication of findings: The findings can be found in repeated study.
    e. Biological plausibility: Current knowledge on the factor or exposure and the response of the human body on a cellular level is consistent with the findings.
    f. Alternate explanations are considered.
        i. Risk of the disease decreases with cessation of exposure.
        ii. The findings are consistent with other knowledge.
        iii. The association is specific: A specific exposure is associated only with one disease. (Gordis, 2014)

61. Risk Factor: a condition that may adversely affect an individual's health

62. Odds ratio: the ratio of the odds of development of disease in non-exposed person

63. Absolute risk: incidence of a disease in a population

64. Attributable risk: how much of the risk (incidence) of the disease we hope to prevent if able to eliminate exposure to the agent in question

65. Relative risk: the ratio of risk of disease in exposed individuals to the risk of disease in non-exposed individuals.

66. (Review Table 4.2 in your text on strengths and weaknesses of study designs. For example, what is the best fit for studying **association**? Which study is typically least expensive and shorter? What are study methods?)

1. The Randomized Control Trial is the gold standard for research and it utilizes intervention testing.
2. Case-control designs
3. Cohort study designs

67. By comparing outcomes, APRNs can advocate needed resources and changes in policies at local, regional, state, and/or national levels by identifying areas for improvement in practice, by comparing evidence needed for effective practice, and by better understanding health disparities. Health disparities are not fair or socially just. They are preventable. They reflect an uneven distribution of social determinants and environmental, economic, and political factors. Health disparities can be defined as the differences identified in incidence or prevalence of illness, health outcomes, mortality, injury, or violence, or differences in opportunities to reach optimal health equity due to disadvantages based on ethnicity, socioeconomic status, gender, sexual orientation, geographic location, or other reasons (Meyer, Yoon, & Kaufmann, 2013). APRNs play an important collaborative role with professionals from other disciplines and community members to work tow

68: Social determinants of health: These determinants include medical care, public health interventions, characteristics of the social environment (e.g., income, education, employment, social support, culture), physical environment (e.g., clean air, water quality), genetics, and individual behavior.

1. Studies such as these illustrate the importance of understanding the social determinants of poor health and the potential for doing good and preventing harm to aggregates and populations by targeting exposures to such things as child abuse and neglect for prevention, early recognition, and intervention.

69. Outcomes measured: The APRN also needs to be concerned with the question of quality, efficacy (Does the intervention work under ideal conditions?), and effectiveness (Does it work under real-life situations?). Other important considerations are efficiency (cost benefit), affordability, accessibility, and acceptability.

1. The evaluation of outcome measures in populations begins with an identification of the health problems, the needs of defined populations, and the differences among groups.

70.what is evidence-based practice?

1. Evidence-based practice is defined as the conscientious integration of best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost-effective healthcare.
2. Interventions that are evidence based and population appropriate can reduce the underlying causes of chronic disease.
3. How can we improve the quality of care for our acute care patients by taking a population-based approach?
4. When nurses apply evidence-based interventions to identified aggregates, they can improve outcomes more effectively than when interventions are designed on a case-by-case (individualized) basis.

71. Noncommunicable disease (NCD):

1. Noncommunicable diseases (NCDs) are the main cause of illness and disability in the United States and are responsible for the greater part of healthcare costs according to the CDC
2. Most chronic conditions result from preventable risk factors such as smoking, poor diet, sedentary behavior, excessive alcohol consumption, high blood pressure, and high cholesterol

72. What is surveillance? Surveillance of poor health outcomes in acute care facilities is one way in which APRNs can identify causative factors and design interventions to reduce costs and improve care.

https://sntc.medicine.ufl.edu/Files/OnTheFly/Content/Module%201%20-%20Research%20Methods%20-%20Lauzardo.pdf

https://www.cdc.gov/globalhealth/healthprotection/fetp/training_modules/19/desc-and-analytic-studies_ppt_final_09252013.pdf

Cohort	Observational
Case-Control	Observational
Cohort	Individuals exposed and not exposed are compared
Case-Control	Individuals with and without the disease are compared
Cohort	Compares incidence of the disease in exposed and not exposed individuals
Case-Control	Compares proportions of those who have the exposure and the disease and those who have the exposure and who do not have the disease
Cohort	In prospective cohort studies, temporal relationship between disease and exposure is easy to establish
Case-Control	In case-control studies, temporal relationship may be hard to establish
Cohort	Can measure absolute and relative risk, odds ratio, and attributable risk
Case-Control	Can measure odds ratio and sometimes attributable risk if additional information is available