

# CO-TEACHING HEALTH 3010

by

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A Senior Honors Project Presented to the

Honors College

East Carolina University

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Requirements for

Graduation with Honors

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## Summary of Project

For my Honors Senior Project I chose co-teaching. I had been considering becoming a professor for a while when I chose my project, and I thought that this option would give me a chance to gain insight into what professorship is like. I also wanted, and still want, to be a Teacher's Assistant during graduate school and I thought co-teaching would allow me to decide if that was something I really wanted to do and it would be an advantage should I decide I want to try to be a TA in graduate school.

The first step once I chose my topic was to choose a mentor. As a double major, I could have chosen a class in my Public Health Studies major or my Hispanic Studies major. I decided I wanted to help with one of my Health classes instead of my Spanish classes because it would be advantageous when I apply to graduate schools. I had taken Health 3010: Health Problems I during the summer of 2011 and did very well in the class. The material was incredibly interesting to me and I knew I wanted to be involved in the class. I also knew that Dr. Felts, the professor for the class, had had students involved in the class in the past and I thought he would be more open to taking me on as a mentee. He agreed to be my mentor, and I began the project in the fall semester of 2013.

I had a few goals for this project; I wanted to improve my own understanding of the course material, learn how to connect with an audience and learn how to teach material in an interesting manner. During my first semester I mainly observed Dr. Felts and took notes on his teaching style and what the students seemed to respond well to and what they seemed to like. I noticed that he used a lot of personal stories and anecdotes to help the class understand and retain the information better. I also noticed that he used a

lot of images and charts and graphs to help students who are more visual learners. I also really like the structure of the class- for two days a week, students would come to class for an in-class lecture. The third day was for students to listen to online lectures and read the articles and Morbidity and Mortality Weekly Reports. This allowed for students to work at their own pace and have access to lectures that they could listen to over and over again. The students also had to make a 12/15 for every unit quiz to move on to the next unit and the quizzes counted as extra credit. In addition to observing Dr. Felts, I made 3x3 quizzes every week. For every day that class took place, every Monday, Wednesday, and Friday except for holidays, students had the opportunity to take an extra credit 3x3 quiz. I created the quizzes to cover what was discussed that day in class or in that week's outside reading.

I became much more involved in the course during the Spring 2014 semester. During the second semester of the project, I created self-study guides to go along with the self-study lectures in some of the units. I also recorded about half a dozen online lectures. Recording the lectures required me to make a slide set and then created a script to go along with it before recording the lecture. During this semester I also delivered one in-class lecture on short notice. During this lecture I tried to employ some of the techniques that I had seen Dr. Felts use that I liked. For example, while I was lecturing on how chicken pox occasionally leads to encephalitis I made sure to tell the class about how my father actually had encephalitis as a result of having chicken pox. I would also tell them a piece of information and then pause and ask them to tell me why they thought something is the way it is or ask them what they thought something meant. This allowed them to think about the topic more in depth before I handed the answer to them. At the very end

of the semester I created a survey to determine which teaching methods the class found to be helpful. I surveyed 45 students and used 4 Likert-style questions and two open-ended questions. The results may be seen in the table below:

	Not at all helpful	Unhelpful	Neutral	Helpful	Extremely helpful
When being taught new material, how helpful do you find the use of personal stories/anecdotes to understand and/or remember information?	0	0	8.89%	66.67%	24.4%
In online lectures, how helpful are charts/graphs and other images?	1.22%	6.67%	31.1%	44.4%	15.6%
In the online self-study lectures in the cancer unit, how helpful were the study guides?	0	0	24.4%	44.4%	15.6%
When trying to understand new material, how helpful is it for the professor to ask the class questions before giving the answer?	1.22%	4.4%	35.6%	37.78%	20%
What did you like or not like about the self-study guides?	<b>Positive</b>		<b>Negative</b>		
	Good prep for exams		Aren't detailed enough		
	Reinforce the info		A few things left out		
	Easy to follow along		Never reviewed		
	Provided a basis for what to study		"Didn't get much out of it"		
	Easier to group info		Don't exist for every unit		

What other teaching methods do you find to be helpful?	<ul style="list-style-type: none"><li>• In class quizzes</li><li>• Unit quiz before moving on</li><li>• Articles/news stories</li><li>• Group activities/group learning</li><li>• Videos</li><li>• Optional practice tests</li><li>• Discussions</li></ul>
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In conclusion, this project taught me a lot about how to teach information to students. My biggest struggle was learning to speak slower so that I would be easier to understand. I thoroughly enjoyed the opportunity to help out with a class that is so vital to my major. I will use the skills I learned after graduation when I deliver my own programs and speeches. After completing this project, I still feel that becoming a professor is something that I want to do and something that I would enjoy. I am grateful to have had this opportunity and I hope that Honors students in the future will have the same opportunity.

## Recorded Lectures

### AIDS lecture:

1. In this lecture we will discuss the disease process of HIV/AIDS.
2. On June 5, 1981 the CDC released an MMWR on a rare lung infection in five gay men in Los Angeles who were all previously healthy but were now also showing other signs of their immune systems not working properly. This was the first official reporting of what would later become known as AIDS. In the days following this MMWR, the CDC received an influx of calls from physicians all over the country who had patients with similar cases. On September 24, 1982 the CDC used the term “AIDS” for the first time and released the first definition of AIDS.
3. In 1983, Dr. Robert Gallo from National Institutes of Health suggests that AIDS is caused by a retrovirus. A few months later, Professor Montangier of the Pasteur Institute in France reports the discovery of Lymphadenopathy Associated Virus (LAV) that could be the cause of AIDS. In April, 1984 the Secretary of the US Department of Health and Human Services announces that Dr. Gallo and his colleagues have found the retrovirus HTLV-III, which they believe to be the cause of AIDS. A month later, Dr. Gallo and Professor Montangier hold a joint press conference to announce that the two retrovirus are almost certainly identical and are the likely cause of AIDS.
4. In May of 1986 the International Committee on the Taxonomy of Viruses declared that the virus that causes AIDS would officially be known as Human Immunodeficiency Virus (HIV). The first antiretroviral drug was approved by the FDA in 1987, and a little over 30 years later the FDA in association with PEPFAR approved the 100<sup>th</sup> antiretroviral drug.
5. This slide shows an increase in AIDS over time and shows the history of AIDS as well.
6. This slide shows diagnoses and deaths of people with HIV infection in the US.
7. 2-4 weeks after infection, many people experience flu-like symptoms, which they often describe as “the worst flu ever.” This stage is called primary HIV infection. Not everyone has symptoms, but those that do may have fever, swollen glands, sore throat, rash, fatigue, muscle and joint aches, and headaches.
8. After the initial HIV infection, the disease moves into clinical latency stage. This means that the virus is living or developing in a person, but the person is not showing symptoms or showing very mild ones. Taking antiretroviral drugs can help a person stay in this stage for several decades, as opposed to about 10 years without the antiretroviral drugs. Even with the use of the medicine, people are still capable of infecting others in this stage.
9. Progression to AIDS occurs when the immune system has been weakened. Again, the use of antiretroviral drugs greatly slows this process. The onset of symptoms signifies the transition from clinical HIV to AIDS.
10. This slide offers a summary of how HIV/AIDS progresses in the body
11. This slide shows how HIV progresses in a person

12. This slide shows the process of HIV replication. As you can see, this slide shows 5 steps. The first shows the ability of the virus to be absorbed and penetrate the cell membrane. The next shows the production of new viral DNA using reverse transcriptase. #3 shows the replication of new RNA particles. The next shows the RNA particles being transferred out of the nucleus. The last number shows these new particles being shed outside of the cell.
13. Binding is the process by which the virus binds to a specific type of t-cell receptor and co-receptor on the surface of the t-cell. HIV can then fuse with the host cell and release its genetic material into the cell. Reverse transcriptase then changed the genetic material of the virus so that it can be integrated into the host DNA. The virus' new genetic material then enters into the T-cell and integrates into the genetic material. This is when the virus may "hide" and remain inactive for several years.
14. Once the host cell is activated, the virus uses your enzymes to create more of its genetic material and make longer proteins. During assembly, protease cuts the longer HIV proteins into individual proteins, which then come together with the virus' genetic material to assemble a new virus. During the final stage, the virus pushes itself out of the cells and takes some of the membrane with it. The covers the virus and allows the virus to have all the structures necessary to bind to a new T-cell and being the process again.
15. As HIV progresses in the body, some changes may occur as a side effect of the medications or due to the impact of HIV/AIDS on the body. The person may gain fat in some areas and lose fat in others
16. Wasting syndrome is the involuntary loss of more than 10% of your body weight, in addition to more than 30 days of either diarrhea or weakness and fever. Wasting refers to a loss in muscle mass, although part of the weight loss may be due to a loss of fat. Wasting can be treated with proper diet, medications to stimulate an appetite, medications to control diarrhea, and hormonal therapy to build muscle.
17. The first image refers to treatments of wasting. The second image shows where your body can gain or lose fat.

#### Management of Diabetes lecture:

1. In this lecture we will be discussing how to manage diabetes
2. When trying to manage diabetes, healthy eating, exercise, monitoring the condition, medication, and health care are all essential. There is no evidence to support that eating too much sugar leads to diabetes. Obesity is a key risk factor in developing diabetes, and the weight to height ratio is a useful predictor of who will develop diabetes. A person's intake of saturated fat and his or her inactivity level are both independent risk factors. Low intake of fruits and vegetables have also been linked to higher glycated hemoglobin levels.
3. When trying to manage type 1 diabetes, a combination of insulin use, healthy eating, and exercise is important. We will discuss treatment of type 2 diabetes further later in this lecture. However, type 2 diabetes is usually first treated with a



- healthy diet and exercise. The next step is to treat with tablets and then with tablets and insulin.
4. This is an example of what foods and their proportions that should be represented on a person's plate during meals.
  5. The glycaemic index is the ranking of foods based on their immediate effect on blood sugar levels. Basically, it rates how long the food takes to get from the stomach to the blood. Foods with a high glycaemic index will quickly raise the blood glucose level to a high level, and foods with a low glycaemic index will slowly raise blood glucose levels to a level that is not as high. Examples of foods with a low glycaemic index are pasta, yogurt, and wholegrain bread. Refined carbohydrates, such as white bread, rice, regular pasta, and soft drinks are rapidly digested, which stimulates the pancreas to produce a lot of insulin rapidly. Repeated surges of this contribute to organ failure.
  6. People on conventional insulin therapies may need snacks in order to avoid hypoglycemia. However, newer oral hypoglycaemic agents and insulin make snacks less necessary. Advice on snacking should be individualized to the person.
  7. On this slide you can see the benefits of losing 10 kilograms, which is about 22 pounds.
  8. In order to determine whether or not treatment for a person's diabetes is working, all people who have diabetes should have blood glucose testing. The frequency of this testing depends on blood glucose control.
  9. Before eating, a blood glucose level between 4 and 6 is ideal, but between 4 and 7 is okay. A level greater than 7 is unacceptable. Two hours after eating a meal, a level between 4 and 8 is ideal and a level between 4 and 11 is okay. Greater than 11 is unacceptable.
  10. In very young children and elderly persons who live alone, higher blood glucose levels may be tolerated. The elderly are at risk of having a stroke or heart attack if they have hypoglycemia. Levels of 12 or even 14 two hours after meals may be tolerated in an elderly person
  11. HbA1c is glycosylated haemoglobin and is a measure of the average blood glucose level over the previous 2 to 3 months. It measures how much glucose is attached to the haemoglobin on red blood cells. It is important to remember that HbA1c is expressed as a percentage and is a different measurement than blood glucose level. A normal HbA1c level is between 4 and 6%. For diabetics, the goal is to have an HbA1c level that is less than 7%.
  12. This slide shows ways to reduce the risk of vascular complications in a person with diabetes.
  13. Type 2 diabetes is traditionally treated in a stepwise manner. Initial therapy is usually diet and increased exercise. However, lifestyle measures generally fail to control glycaemia and, therefore, pharmacological treatment is instigated. Initial therapy is with a single oral drug although monotherapy often fails over a period of time and a combination of two or more oral therapies is used. Subsequently, failure of all oral combination therapy may occur when  $\beta$ -cell failure has progressed to such a degree that additional, exogenous insulin is required.
  14. Type 2 diabetes generally results from either a decrease in insulin secretion or insulin resistance, which is a condition in which the body produces insulin but

- does not use it effectively. It is important to remember that hypoglycaemics are not insulin and cannot replace insulin. Hypoglycaemics help the body to better utilize or make insulin.
15. There are three classes of oral hypoglycaemic agents: one targets insulin secretion, one targets insulin resistance, and one targets glucose absorption from the intestine.
  16. One of the primary goals in treating diabetes is to “treat to target,” which means treating in terms of the target HbA1c level. With long-term treatment, 75% of patients do not maintain an optimal glycaemic control with one therapy alone. A combination therapy is used when monotherapy fails.
  17. This slides shows various combinations with insulin that may be used to reach optimal glycaemic control.
  18. We will now discuss insulin therapy.
  19. Insulin stimulates the uptake of glucose by the tissues, converts glucose to glycogen in the liver, increases the production of fats and proteins, and prevents the breakdown of body protein for energy.
  20. Control of blood glucose levels is essential in order to minimize long-term complications. Those who should receive insulin therapy are newly diagnosed cases of type 1 diabetes, type 2 diabetics on maximum tablets, type 2 diabetics who have contraindications to oral hypoglycemic agents, those who have diabetes and are pregnant, after an acute myocardial infarction, and with an acute illness or infection.
  21. This slide shows some potential barriers a patient might experience when starting insulin
  22. There are many different ways in which insulin may be administered in the body. Insulin comes as 100 units per millilitre and is made by DNA technology.
  23. Extra insulin may be required during pregnancy, in the event of a serious inter-current illness, in the event of major surgery, and with ketoacidosis
  24. It is important to educate patients and others about the timing of tests and insulin, target levels, dose administration sites, food and weight, hypoglycaemia, disposal and storage of dose administration tools, sick day rules, and driving.
  25. Insulin therapy can cause some adverse effects. These include hypoglycemia, allergic reaction, insulin lipodystrophy, and insulin insensitivity or resistance. To avoid insulin lipodystrophy, it is important to rotate within injection sites.
  26. Insulin therapy may be used in type 2 diabetics due to the progression of it over time, with those who are pregnant or planning to become pregnant, patients with organ failure for whom oral therapy, and those who experience an acute illness or have surgery.
  27. Hypoglycemia is when low blood glucose occurs. It can only occur if people are taking tablets for diabetes or insulin. Hypoglycaemia occurs when the blood glucose level drops too low.
  28. This slide describes possible causes of hypoglycaemia in people
  29. This slide shows the signs and symptoms of hypoglycaemia. Symptoms and severity of symptoms will vary between people and how low the blood glucose drops.

30. Hypoglycemia should be treated immediately. Check the blood glucose level is able. If you are not sure, treat it as hypoglycaemia. If the person is conscious and safely able to swallow, give the person 5-7 jelly beans, 15g glucose tablets, 3 teaspoons of glucose powder or sugar, 150ml of lucozade or a soft drink, or 150ml of another glucose energy drink.
31. If there is no improvement in 5 to ten minutes, give the person more food or drink that has a high glycemic index. Once the person is feeling better and his or her blood glucose level is rising, have him or her eat a snack that has a low glycaemic index.
32. If the person is drowsy and unable to safely swallow food or drink, lie the person on his or her side and call 911. Do not try to give him or her anything to eat or drink.
33. While insulin lowers blood glucose levels, glucagon works to raise those levels. Glucagon, which breaks down stored glycogen into glucose, can be used in an emergency to increase blood glucose levels.
34. This slide shows future developments for insulin therapy.
35. This shows where insulin may be administered.
36. The rotation of injections between different sites is no longer recommended. Instead, it is better to choose one site for day to day absorption and rotate within that site to prevent lipoatrophy.
37. There are various way to administer dosages. Short-acting insulin may be administered 15-30 minutes for a meal or according to the blood glucose level. Intermediate-acting insulin may be given at night, and insulin may be given at set doses at set times. HbA1, which is haemoglobin, provides an index of control and should be below 8.8%.

#### Pathophysiology of Diabetes Lecture:

1. In this lecture we will discuss the pathophysiology of diabetes.
2. In the US, an estimated 40% of people older than 40 are pre-diabetic. This means that the blood glucose level is increased, but not at a level to be diagnosed. Diabetes can be caused by too little insulin, resistance to insulin, or both. The three major types of diabetes are type 1, type 2, and gestational diabetes.
3. Diabetes occurs due to the disruption of normal carbohydrate metabolism.
4. This slide shows how blood glucose is regulated in the body. Please take a moment to study this diagram.
5. If blood glucose is low, glucagon is released, which is converted to glucose in the liver. If blood glucose is too high, the body releases insulin. This stimulates the liver to have an uptake of glucose from the blood, which is converted to fat for storage.
6. The pancreas has the functions of both an exocrine and an endocrine gland. The two functions work together to maintain a steady level of glucose in the blood, which keeps the body fueled.
7. Insulin causes a decrease in blood levels of glucose and glucagon causes an increase in blood glucose. Insulin works antagonistically with glucagon to control blood sugar levels.

8. It is recommended that you create your own summary of this process:  
A Meal → ↑glucose levels → insulin released → cells take up glucose → convert to glycogen (liver & skeletal cells) → ↓glucose level in the blood → insulin production ceases; Glucagon → converts glycogen into glucose → return to normal blood glucose levels
9. Insulin is responsible for stimulating the uptake of glucose by the tissues, converting glucose to glycogen in the liver, and increasing the production of fats and proteins
10. Insulin resistance, which is the decreased response of the liver and peripheral tissues to insulin, is a primary issue in most patients with type 2 diabetes.
11. 10-15% of diabetes cases are type 1 diabetes. Type 1 results when insulin production is not possible because the body's immune system destroyed its own beta cells in the pancreas. Type 2 diabetes may result from insulin resistance, inadequate insulin production, or a combination of both.
12. Type 1 diabetes is usually diagnosed under 30 years of age with the sudden onset of severe symptoms. Take a moment to look at the characteristics of type 1 diabetes.
13. Type 2 diabetes is far more common than type 1 and makes up 90% or more of all cases of diabetes and usually occurs in adulthood. The pancreas does not make enough insulin to keep blood glucose levels normal, often because the body does not respond well to the insulin. Many people with type 2 diabetes do not know they have it, even though it is a serious condition. Type 2 diabetes is becoming more common due to the ageing population, increasing obesity, and failure to exercise.
14. Gestational diabetes is diagnosed during pregnancy. Although it goes away after birth, there is an increased risk for the mother and child to develop type 2 diabetes.
15. This slide shows risk factors for type 1 diabetes. Although there are several different risk factors, the primary risk factors are genetics and a family history of diabetes.
16. Risk factors for type 2 diabetes include: increasing age, obesity, physical inactivity, family history, an ethnic background, high blood pressure, high cholesterol, and having had gestational diabetes.
17. Please take a moment to compare the differences between type 1 and type 2 diabetes.
18. Listed here are some immediate complications of diabetes.
19. Ketoacidosis and insulin shock are both immediate possible complications of controlling diabetes.
20. The US Preventive Services Task Force recommends screening adults for type 2 diabetes who have a sustained blood pressure above 135/80 even if they have no symptoms. The evidence is insufficient to determine the benefits vs harms of screening for type 2 diabetes in those without symptoms who have a sustained blood pressure below 135/80.
21. Diabetes can cause complications with many areas of the body including the eyes, nervous system, skin, kidneys, and feet.
22. This slide shows symptoms that may be present with type 1 diabetes.

23. With type 1 diabetes, symptoms usually develop over a short period of time. Acutely ill type 1 diabetics also have high levels of ketones due to cells burning fats as an alternate source of energy.
24. Cardiovascular disease is the leading cause of early death among those with diabetes. Adults who have diabetes are 2-4 times more likely to die of heart disease or have a stroke than people without diabetes.
25. This slide shows some of the symptoms of type 2 diabetes.
26. Another long-term complication of diabetes is eye disease. Diabetes is the leading cause of new cases of blindness among adults ages 20 through 74. Those with diabetes are also more likely to develop cataracts and glaucoma.
27. With diabetes, cells and blood vessels in the kidneys are damaged. This can lead to kidney failure. In fact, diabetes is the leading cause of kidney failure and accounted for 44% of new cases of kidney failure in 2005.
28. Nerve damage may also occur in people with diabetes. High blood glucose can damage blood vessels and nerve coverings. This may cause numbness, pain, and weakness in the hands, arms, feet, and legs. About half of people with diabetes have some form of nerve damage.
29. People who have diabetes are more likely to have problems with their teeth and gums, as well as fungal infection, problems with post-surgery healing, and dry mouth. Periodontitis is the inflammation and infection of the ligaments and bone that support the teeth.
30. Vascular complications are the major cause of morbidity and mortality in type 2 diabetes. There are two types- microvascular and macrovascular. Microvascular includes kidney disease, eye disease, and nerve damage.
31. Diabetics may experience diminished sensation in certain areas, such as the feet. Ulcers may occur on the pressure points of these areas. Because they do not feel pain from the ulcers, ulcers on the bottom of the feet may go unnoticed.

#### General Infectious Disorders: Common Bacterial Infections Lecture:

1. In this lecture we will discuss common bacterial infections.
2. One of the most common bacterium causing infections in humans is the streptococcal bacterium. There are many strains, but the most common is Group A Streptococcus infections. This bacterium is commonly found in the throat and skin resulting in a range of potential diseases that range from mild to deadly. These include: Strep throat, scarlet fever, rheumatic fever, impetigo, and necrotizing fasciitis.
3. Staphylococcal infections are responsible for many common skin infections and food poisoning. They also cause Toxic Shock Syndrome, or TSS. TSS is usually associated with tampon use and contraceptive devices, but it may also be caused by surgery or skin abscesses.
4. TSS is a relatively rare disease that has somewhat non-specific symptoms. The individual with TSS may suffer from hypotension and multisystem dysfunction.
5. This graph shows the impact that lowering the absorbency of tampons has on the rate of TSS cases.

6. Staph that is resistant to Methicillin and other antibiotics is called Methicillin-resistant Staphylococcus Aureus or MRSA. These infections occur most frequently among persons staying in hospitals or other healthcare facilities who have weakened immune systems. MRSA can also occur in the community and has been seen in healthy children and adults who do not have hospital-associated risk factors.
7. Skin-to-skin contact with someone who has MRSA, someone with open cuts or abrasions, or someone who has poor hygiene or participates in contact sports is more likely to get MRSA. MRSA that is acquired in persons without the hospital associated risk factors is called Community Acquired MRSA.
8. MRSA is more difficult to treat, but not impossible. Doctors generally use the antibiotic vancomycin to treat MRSA. This is given through injection or intravenous drip. Surgery may be needed to remove infected tissue or implanted devices that have become infected.
9. This graph shows that MRSA has been gradually increasing among ICU patients.
10. Today, one third of the World's population is infected with TB. In the US, 9,945 cases were reported in 2012, which is the lowest number of reported cases since national reporting began in 1953. Rates of TB have been declining since the 1992 resurgence peak. In 2012, 63% of TB cases in the US occurred among foreign-born persons, which is eleven percent higher than the rate among US-born persons.
11. Only a small percentage of those who have been exposed to TB will develop TB, and of those, only a small percentage will show symptoms.
12. Only a small percentage of those infected with TB will show symptoms. TB is primarily an airborne disease that is spread through microscopic droplets.
13. TB is caused by an immune response in which the PNM's attempt to destroy the lung tissue. Macrophages then invade and combine with the destroyed tissue to create a tubercle. This area will become walled-off and calcified and lung function may become impaired. Treatment of TB can involve as little as six months and up to one year of antibiotic therapy.
14. This slide depicts the difference in rates of TB among foreign-born persons versus US-born persons.
15. As you can see in this graph, the rate of reported cases of TB has generally been decreasing in the past decade.
16. From this chart, you can see that the number of cases of TB has been decreasing every year. TB morbidity is the number of cases per 100,000.
17. This pie chart shows the differences in reported cases of TB among various races or ethnicities.
18. Most types of pneumonia can be treated with an antibiotic, but it may be a serious illness for those who are elderly or already ill. Pneumonia can cause problems for those younger than 2 and older than 65.
19. Pneumonia kills more people each year in the US than all other vaccine-preventable diseases combined. Pneumonia has other 30 different causes, and half of all pneumonia cases are believed to be caused by viruses. The main 5 causes are listed.

20. Pneumonia is often divided into community-acquired and hospital-acquired depending on whether the the person was infected in or outside of a hospital setting.
21. Pneumonia is typically treated with oral antibiotics, rest, and fluids. Those who are having trouble breathing, those with other medical problems, or the elderly may need more advanced treatment.

#### Cardiovascular Disease: Principles of Prevention Lecture:

1. In this lecture we will continue to discuss cardiovascular disease.
2. As you can see, the trend in cigarette smoking has been generally decreasing for the past decade.
3. This slide shows how smoking may cause coronary heart disease. There are two classes of effects. The first three bullets involve the speeding up of atherosclerosis. The last two involve the immune effects of oxygen supply to the myocardium and increasing the cardiovascular workload. In general, the risk due to smoking is a risk that is reduced relatively quickly once it is removed.
4. One goal in reducing coronary heart disease is smoking cessation, or the absence of smoking in those who have already begun to smoke.
5. Between 2011 and 2012, 75.6% of adults aged  $\geq 18$  years with hypertension were taking medication to lower their blood pressure, and 51.8% had their blood pressure under control.
6. The slide explains how high blood pressure contributes to coronary heart disease. Hypertension, or high blood pressure, accelerates the process of atherosclerosis.
7. The goal for blood pressure in relation to cardiovascular disease is to maintain a blood pressure that is 140 over 90 or lower. It is important to measure blood pressure every two years. While primary prevention of cardiovascular disease is still questionable, there are lifestyle modifications that may certainly lower the number of individuals that develop hypertension.
8. From this you can see that only about one fourth of youth in 2012 were physically active daily, with boys being more physically active than girls.
9. This chart depicts the percentage of adults ages 18 and older who met the guidelines for aerobic activity and muscle strengthening by sex and race/ethnicity.
10. Lack of exercise has been considered a cause of cardiovascular disease. This slide summarizes the recommendations for physical activity in relation to cardiovascular disease.
11. Obesity is also considered to be a cause of cardiovascular disease. The recommendation is to achieve and maintain a desirable weight, determined by body mass index, or BMI.
12. There are a number of ways in which obesity and inactivity contribute to coronary heart disease. LDL levels are typically higher and HDL levels are typically lower in individuals who are obese or inactive. Both diabetes and blood pressure are typically higher in these individuals. Most individuals have a compromised heart and are unable to do work.
13. In 2009, non-Hispanic Black adults were almost twice as likely to be diagnosed with diabetes as were non-Hispanic White adults. Hispanic adults, particularly of

- Mexican and Puerto Rican origin, were also more likely to be diagnosed with diabetes.
14. Diabetes increases the rate of atherosclerosis, thus increasing the rate of coronary heart disease. The mechanism is summarized here.
  15. Primary prevention of cardiovascular disease is carried out by identifying and altering risk factors.
  16. In this slide you can see the how strokes and modifiable risk factors are related.
  17. Now we will discuss some different treatment methods for those with coronary heart disease.
  18. Treatment aims to balance blood supply to the heart with oxygen demand and prevent worsening of coronary heart disease. Taking an aspirin daily or every other day reduces the likelihood of chest pain or a heart attack by reducing the chance of a clot forming over rupturing plaque in the coronary artery, which is a common underlying phenomenon in a heart attack. Side effects of aspirin include ulcers or bleeding problems. Nitroglycerines reduce chest pain by reducing your heart's oxygen demand and by dilating the coronary arteries. There are skin patches that work slowly and there are sprays or tablets that can be placed under the tongue for immediate relief from chest pain.
  19. Calcium channel blockers dilate the coronary arteries to improve blood flow. They also reduce blood pressure and slow the heart rate. ACE inhibitors dilate the blood vessels to increase blood flow. They have been shown to reduce the number of cardiac events, heart attacks, and death in people with coronary heart disease. They are immensely useful for those with diabetes and weakened heart muscles.
  20. This procedure is similar to coronary angioplasty, but is therapeutic as well as diagnostic. A similar, but sturdier, tube is inserted into the groin or arm and a hair-thin guide wire is threaded through the coronary artery. A much thinner catheter is then threaded over the guide wire and into the blocked artery. The catheter has a tiny balloon at the end which is positioned at the blockage and then inflated to widen the artery and improve blood flow. If plaque remains, it will flatten against the wall of the artery. The balloon catheter is then withdrawn. This procedure is sometimes called PTCA for Percutaneous Transluminal Coronary Angioplasty
  21. Coronary Artery Bypass Grafting is one of the most commonly performed major operations. This procedure is advised for patients with significant narrowing and blockage of the heart arteries. The procedure creates new routes around the narrowed or blocked arteries, which allows significant blood flow to deliver oxygen to the heart muscles. Bypass Grafting involves sewing the graft vessels to the coronary arteries beyond the narrowing or blockage.

### **Self-study Guides**

#### Breast Cancer Self-Study

1. Breast cancer is the most common cancer in women in the US and the \_\_\_\_\_ leading cause of cancer-related death in the US.



2. Define:

a. Lobules:

b. Ducts:

c. Stroma:

3. The most likely cause of breast cancer is related to changes in our

\_\_\_\_\_ in our cells, and these changes are often related to our  
\_\_\_\_\_.

4. Explain the following risk factors for breast cancer:

a. Gender

b. Age

c. Genetics

d. Family history

e. Personal history

f. Previous chest radiation

g. Race

h. Overweight

i. Alcohol use

j. Exercise

5. There is no sure way to prevent breast cancer, but there are some things all women can do to reduce their risk such as:

\_\_\_\_\_.

6. What are the benefits of being screened for breast cancer?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Explain the four types of breast cancer screenings:

- a. Mammogram
- b. Clinical breast exam
- c. Breast awareness and/or self exam
- d. Breast MRI

8. T or F: Using these methods combined is better than any one method alone.

9. Be familiar with ACS recommendations for early breast cancer detection.

### Colorectal Cancer Self-Study Guide

1. Colorectal cancer is the \_\_\_\_\_ common cancer in both men and women and the \_\_\_\_\_ leading cause of cancer-related deaths in the US.
2. Colorectal cancer starts in the \_\_\_\_\_ or in the \_\_\_\_\_.
3. Define:
  - a. Colon

b. Rectum

4. Explain the following risk factors:

a. Age

b. Diet

c. Physical Activity

d. Overweight

e. Smoking

f. Heavy alcohol use

g. Type 2 Diabetes

5. Those with \_\_\_\_\_ (such as Crohn's disease) are more likely to develop CRC than others.

6. What is the relationship between adenomatous polyps and CRC?

7. Name and be familiar with tests that can find both polyps and CRC

a.

b.

c.

d.

8. Name and be familiar with tests that find mainly cancer

a.

b.

c.

9. Explain ways to prevent CRC:

a. Be active

- b. Eat right
- c. Limit alcohol
- d. Get screened for CRC

### Lung Cancer Self-Study Guide

1. Lung cancer is the \_\_\_\_\_ most common cancer in both men and women.
2. Lung cancer is the \_\_\_\_\_ cause of death from cancer among men and women in the US.
3. Name the two types of lung cancer:
  - a.
  - b.
4. About 87% of all lung cancer deaths are thought to result from \_\_\_\_\_ (Hint: the leading risk factor for lung cancer).
5. \_\_\_\_\_ is the second leading cause of lung cancer, and it is the leading cause of lung cancer among non-smokers.
6. The best way for most people to avoid lung cancer is to not \_\_\_\_\_, but also to avoid \_\_\_\_\_.
7. Reducing or eliminating exposure to \_\_\_\_\_ (Hint: a gas) to reduce risk of developing lung cancer.

### Prostate Cancer Self-Study Guide

1. Prostate cancer is the \_\_\_\_\_ common cancer diagnosed in men and the \_\_\_\_\_ leading cause of cancer-related death among men in the U.S.

2. Prostate cancer grows \_\_\_\_\_ (Hint: quickly or slowly?)
3. Which race has a higher rate of prostate cancer and is more likely to be diagnosed at an advanced stage?
  - a. Is the reason for this difference clear?
4. Having a brother or father with prostate cancer more than \_\_\_\_\_ a man's risk for developing the cancer.
5. \_\_\_\_\_ men diagnosed with prostate cancer do not have a family history of the disease.
6. Can prostate cancer be prevented?
7. List 3 ways to lower the risk of prostate cancer:
  - a.
  - b.
  - c.
8. What are PSA exams and DRE exams?
9. Although \_\_\_ out of every 6 men will be diagnosed with prostate cancer during their lifetime, only 1 out of \_\_\_\_\_ men will die from it.

### Skin Cancer Self-Study Guide

1. Skin cancer is the \_\_\_\_\_ common of all types of cancer, and it accounts for at least half of all cancers.
2. What are the two main types of skin cancer?
  - a. \_\_\_\_\_

- b. \_\_\_\_\_, which is further broken down into two types:
  - i.
  - ii.
- 3. \_\_\_\_\_ is a skin cancer that begins in melanocytes. It is much \_\_\_\_\_ common than basal or squamous cell skin cancers, but far more \_\_\_\_\_.
- 4. About \_\_\_ out of \_\_\_ skin cancers are basal cell carcinomas.
- 5. Basal cell carcinomas \_\_\_\_\_ spread to nearby lymph nodes or distant parts of the body.
- 6. Squamous cell carcinomas account for \_\_\_ out of \_\_\_ skin cancers and tend to be \_\_\_\_\_ aggressive than basal cell carcinomas.
- 7. What causes most skin cancers?
- 8. List the 2 major skin cancer risk factors:
  - a. J
  - b. J
- 9. List the risk factors for melanoma
  - a. K
  - b. K
  - c. K
  - d. K
  - e. K
  - f. K

10. List the risk factors for basal and squamous cell cancer

- a. k
- b. k
- c. k
- d. k
- e. k
- f. k
- g. k
- h. k
- i. k
- j. k
- k. k

11. Be familiar with ways to prevent skin cancer.

12. It's best to protect your skin from the sun and get vitamin D by

\_\_\_\_\_.

13. In order to find skin cancer early, know your \_\_\_\_\_ and get

\_\_\_\_\_ by a health care professional.

14. Explain the ABCD rule:

- a. **A**symmetry
- b. **B**order irregularity
- c. **C**olor
- d. **D**iameter

## Immune-related Disorders Study Guide

1. Describe the following immune system problems:
  - a. Immune Deficiency Disorder:
  - b. Hypersensitivity Disorder:
  - c. Autoimmune Disorder:
  - d. Immunoproliferative Disorder:

2. Summarize the process of a hypersensitivity reaction:

Body encounters an \_\_\_\_\_ → Triggers

\_\_\_\_\_ production → Antigen/antibody complexing occurs on

\_\_\_\_\_ → Mast cells release \_\_\_\_\_ →

Histamines trigger \_\_\_\_\_.

3. List the treatments for allergies

- a.
- b.
- c.
- d.
- e.

4. What are allergic rhinitis and atopic dermatitis?

5. In the case of anaphylaxis, there is a \_\_\_\_\_, or all-over release of histamines that affect the body as a \_\_\_\_\_.

6. What are some aspects of autoimmune disorders?



7. Be familiar with the following diseases and disorders and how they occur in the body:
- a. Multiple Sclerosis
  - b. Myasthenia Gravis
  - c. Rheumatoid Arthritis
  - d. Scleroderma
  - e. Systemic Lupus

USPSTF Self Study Guide

1. What does the acronym USPSTF mean?
2. In what setting are services offered?
3. Recommendations for services apply to those who (choose one):
  - a. Are showing advanced symptoms of disease
  - b. Show no signs or symptoms
  - c. Show mild signs or symptoms
4. T or F: The USPSTF conducts its own research in order to make recommendations.
5. Who serves on the USPSTF?
6. They may suggest a \_\_\_\_\_ prevention service topic or recommend \_\_\_\_\_ of an existing topic.
7. Steps the USPSTF takes to solicit public input:

Create \_\_\_\_\_ -> Compile  
\_\_\_\_\_ -> Develop \_\_\_\_\_ -  
> Disseminate \_\_\_\_\_

8. Briefly explain what the following recommendation grades signify:
- a. A:
  - b. B:
  - c. C:
  - d. D:
  - e. I:

### Healthy People Study Guide

1. Healthy People is a set of specific, \_\_\_\_\_ objectives to be achieved over the following \_\_\_\_ years with a vision for improving health and health \_\_\_\_\_.
2. Briefly summarize the four overarching goals:
  - a.
  - b.
  - c.
  - d.
3. Healthy People 2020 emphasizes involving sectors outside health, such as:
  - a.
  - b.
  - c.

d.

e.

f.

4. Healthy People 2020 objectives are \_\_\_\_\_ driven and \_\_\_\_\_ oriented.

5. How can you use Healthy People 2020 in your career?

6. How can community members use Healthy People to improve the health of the community