

BENEATH THE SURFACE LESSON PLAN

UPSTATE
MEDICAL UNIVERSITY

beneath the
*sur***FACE**



UPSTATE
CANCER CENTER

www.upstate.edu/surface

PROGRAM SUMMARY

beneath the surFACE is a head and neck cancer awareness and education outreach program developed by the Upstate Cancer Center in Syracuse, NY. The primary audiences are students in the age range of 10 to 13 (middle school) with relevant information for 14 to 18+ (high school). The program focuses on prevention through education of the effects of smoking and excessive drinking and vaccination against the human papillomavirus (HPV). Initially, the project worked with eight local high schools and presented to over 3000 health class students. The presentation and information have been reformatted to include a self-guided lesson plan for instructors, student activities, HPV fact sheets and resources, and a documentary of the original project.

INTENDED LEARNING OUTCOMES (ILO)

Upon completion of this program, students will be able to:

- Identify the common risk factors for head and neck cancers
- Identify consequences of life style behaviors
- Discuss methods for prevention of head and neck cancers
- Develop a strategy to reduce head and neck cancers

MATERIALS

- Cover letter for administration and educators
- Lesson Plan/Script/Talking Points
- Instructor guided online presentation
- Documentary link
- Supplemental materials: student activities, additional resources, and follow up materials

AUDIENCE & LESSON PLAN IMPLEMENTATION:

Middle school students are the primary focus of the materials to coincide with the recommended age of suggested HPV vaccination (10-13). Given the range of age for HPV vaccination and increased use of tobacco and alcohol by high school students, this Lesson Plan should be implemented at the high school level as well. The recommended delivery of the lesson plan can be integrated in any health class or education seminar.

The Lesson Plan has three distinct parts:

- Instructor guided presentation - allows teachers to customize the talking points (base script provided), class discussions, and pace of the presentation of the material in the classroom
- Supplemental materials: student activities and additional resources which instructors may choose to use to supplement their own Lesson Plan items
- Documentary – a 30-minute documentary, titled beneath the surFACE, that supports the Lesson Plan through physician provided information and patient stories

The Lesson Plan and materials are all provided for the instructor so they can format the lesson into their class schedule. We recommend either a single day or two-day lesson with the documentary being the final component. Follow up on retention of information and questions regarding HPV vaccination compliance are encouraged.

These materials are for educational purposes only and are not intended to be a substitute for medical treatment by a health care professional. Because of unique individual needs, the readers should consult their personal physician to determine the appropriateness of the information for the reader's individual situation.

DOCUMENTARY OVERVIEW

Documentary link provided at www.upstate.edu/surface

Summary:

When you look at a project such as this you see many layers. It is about the patients and their experience; the education of our youth on how to make life choices that will help to prevent head and neck cancer; taking something that is plain, cold, and representative of emotional and physical struggle and turning it into magnificent works of art; the science behind it all; and the effects this all has on the community. We are able to tell all of these storylines simultaneously in our documentary.

beneath the surFACE is an award-winning documentary that reflects the Lesson Plan provided in this lesson. Several experts on head and neck cancer will provide supportive information including the need for HPV vaccination. In addition, it tells the story of several patients and their families as they describe their experience with head and neck cancer. Students will be able to visualize the radiation therapy masks, radiation treatments, patient's physical struggles, and transformation of the masks to artwork. Most importantly they will hear the need for prevention from the patient's perspective in the hopes that they will make a positive impact on their lives moving forward.

PRESENTATION AND LESSON

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BEFORE YOU BEGIN

Please visit upstate.edu/surface to locate the first part of the student activities before beginning the presentation.

OVERVIEW

Note to those teaching the following lesson: Provided below are talking points (regular text) and scripting (italics) that match the presentation slides. They contain prompts and important information that are connected to the learning outcomes. Please use the information and adapt it to your teaching style and audience to help increase the effectiveness of its message. It is also important to note that some of the content of this presentation contains real life images of symptoms and side-effects of cancer patients and content that could be emotionally challenging for the audience. A brief announcement about the content at the beginning of the lesson is **strongly** suggested allowing them to avert their eyes or even leave if needed.

SLIDES

Slide 1: Introduction and Title

Slide 2: Learning Outcomes –

By the end of this program the student will be able to:

- *Identify common risk factors for head and neck cancers*
- *Identify consequences of life style behaviors*
- *Discuss methods for prevention of head and neck cancers*
- *Develop a strategy to reduce head and neck cancers*

Slide 3: Imagine (Time Machine)

- This slide is meant to place the students in the frame of mind of being a normal person who has had the surprise of a head and neck cancer diagnosis. It is used in conjunction with the next slide and story. First, you will want to ask the students a version of the following:
- *Pick your favorite time machine. We want you to think of who you are at the age of 35. Think about all of the elements of your life – where you work, if you are married, if you have children or are thinking about a family, what you like to do for fun, and where you might be living. This is a great time for many – it is where most start making real money in their career, pay off loans, maybe buy a house or new car, and are able to afford some fun things. At this age, many people are in the prime of their lives. Now, close your eyes and picture that person*

Slide 4: Close your eyes...

- The following is an example of the story that can be used, paraphrased, or re-worded based on instructor:
- *Picture that person in your mind. Try to see all of those things you just imagined in your mind. Now imagine one day you woke up and felt a cold sore in your mouth. No big deal – just a common cold sore. You ignore it for a few days and then a few weeks go by and it is worse so you go to see the doctor expecting to get some antibiotics to take care of the issue. When the doctor sees you he asks you to stay for a few more tests and the conversation becomes a little more serious than a simple visit. After performing the tests, the doctor says that the cold sore is the beginning of oral cancer – a form of head and neck cancer. At 35 you are shocked by the news. All of those things you just imagined in your life could change drastically. The doctor goes on to tell you that you will need to immediately be seen by a specialist and will likely have to have surgery, possibly chemotherapy, and surely radiation which will last up to 7 weeks. During those treatments, you will have to wear one of these (advance the slide to show the picture of the radiation therapy mask).*

Discussion on radiation therapy mask:

- The picture seen is a radiation therapy mask worn by head and neck cancer patients receiving treatment.
- Pre-knowledge: *Who knows what radiation treatment is or give examples of radiation (sunlight, microwaves, gamma rays, X-rays).* High-intensity x-rays are the most widely used form of radiation used to treat this cancer.
- *So why the mask? Why would we want to have the patient wear the mask?* Keeps the patient from moving while receiving treatment – if they move the radiation rays do not go to the correct place.
- *Making the mask takes 3-5 people – it starts with a flat sheet and then has to be stretched over a person's face. Each one is unique to the patient.*
- *How would you feel if you had to wear that mask for 7 weeks, 5 days a week, for 30 minutes a day while receiving your treatments? Scared, claustrophobic, anxious, depressed...*
- *The mask is something that is difficult for many patients to use and represents a very difficult time in their lives. Most never want to see it again.*
- The point of this lesson is to be sure the students never have to wear this mask. Never have to be a patient with head and neck cancer. We will talk about what head and neck cancer is and how it is treated. We will look at some side-effects (please give a warning that some of the images might be difficult to look at for some – they may wish to turn away and if they don't feel well to let their teacher know) and outcomes for patients. We will also look at ways that we can educate the community, change the perception of the mask, but the most important part is prevention.
- **IMPORTANT: If you hear nothing else during this presentation, please listen to this. Head and neck cancer is preventable by 93% if you avoid certain lifestyle behaviors and are properly vaccinated. No other cancer can say that.**
- We will begin with some general information on cancer...

Slide 5: Video

Slide 6: What is cancer?

- Pre-knowledge/discussion: What do you know about cancer?

Slide 7: Healthy cells vs. cancer cells

- The body is made up of cells which, when normal, divide continuously, and when damaged, undergo cell death, to keep the body healthy.
- When damaged cells do not die and instead, begin to divide, they become cancer cells.
- Cancer cells invade and destroy tissues around them, making people very sick.
- There are many different types of cells in the body that can develop into cancer cells, which is why there are so many different types of cancers.

Slide 8: So What Can Cause Cancer?

Slide 9: Known Risks

- Scientists have found that certain lifestyle choices increase the risk of developing cancer later in life. Behavioral decisions that you make today will affect your risk of cancer development later in life.

Slide 10: Video

Slide 11: Reduce the Risk

- Discussion: What lifestyle choices are known to reduce the risk of cancer?
Slide has examples:
 - Avoiding tobacco use
 - Not drinking too much alcohol - moderation
 - Eating a healthy diet
 - Routine exercise
 - Wearing sunscreen
 - Avoiding tanning beds
 - Vaccinations – hepatitis B and HPV

Slide 12: What is head and neck cancer?

Slide 13: Video

Slide 14: What is Head & Neck Cancer?

- Discussion: *What are the areas of the body where you think head and neck cancers develop? While this might seem obvious look to get students to tell you specific body parts. Someone will likely say brain which is a perfect teachable moment to separate head and neck from brain cancer – two different categories.*
- *When cancer cells develop in the sinuses, nose, mouth, and throat, it is called head and neck cancer. Simply put it is from below the eyes to above the throat.*
- *We will be focusing on cancers that develop in the mouth and the throat – an area called the oropharynx.*

Slide 15: So What Can Cause Head & Neck Cancer?

Slide 16: Video

Slide 17: Known Risks

- *Known risks Discussion: What do you think may be the most common risk factors for head and neck cancers?*
- *The three main risk factors leading to cancer of the oropharynx include the use of tobacco products, excessive alcohol consumption, and HPV infection.*

Slide 18 : Tobacco Products

- *Discussion: How many tobacco products can we list? Cigarettes, cigars, pipes, chew, snuf, and dip might be more obvious and be sure they include e-cigarettes, vape, second hand smoke, and smoked drugs with emphasis on marijuana.*
- *Tobacco products contain many chemicals that cause cancer. These include every one that we just listed.*
- *Anything that changes the cell structure in your mouth could lead to cancer.*
- *Not only do using these products increase the risk of cancer but so does being exposed to tobacco smoke second-hand. Avoidance of these products (both directly and second-hand) will reduce the risk of developing cancer.*

Slide 19: Excessive Alcohol Consumption

- Alcohol is known to be a risk factor for head and neck cancers. The risk of developing cancer increases accordingly with the amount of alcohol consumed. Avoiding excessive amounts of alcohol intake will reduce the risk of developing cancer.
- Those that combine excessive alcohol use and tobacco use are at MUCH HIGHER RISK of developing head and neck cancer.

Slide 20: HPV Infection

- Discussion: Who has heard of HPV? Anyone know what it stands for? How is it transmitted?
- HPV – also known as human papillomavirus—is a commonly seen infection transmitted through unprotected sexual contact and is now known to be associated with the majority of cancers of the oropharynx and all cervical cancers.
- HPV is very common in the US, with 79 million Americans currently infected and 14 million people becoming newly infected each year. The majority of these new infections occur in young adults aged 15-24 years.

Slide 21: A close up of HPV on the skin

- Oral HPV infection causes cancers in the back of the throat, including the tongue and tonsils. HPV is now the most common cause of oropharyngeal cancer, particularly HPV type 16.
- As of 2018, HPV related oropharyngeal cancer was more common than cervical cancer.
- HPV-associated oropharyngeal cancer is seen more commonly in males than females and more common among whites than other races.
- Death rate from oral cancer is one person each hour, per 24 hour day.
- Of those diagnosed with oral cancer only a little more than half of them will be alive in 5 years.
- There is an HPV vaccine for adolescents that is safe and effective in preventing HPV infection and the development of HPV-associated cancers. Being vaccinated against HPV will reduce the likelihood of acquiring infection and the risk of developing cancer. We will come back to that topic in a few slides.

Slide 22: Video

Slide 23: Symptoms of head & neck cancer

Slide 24: Video

Slide 25: Known Symptoms

- Oropharyngeal cancer – a form of head and neck cancer – can present with symptoms as subtle as a persistently sore throat, persistent ear pain without an infection, non-healing sore on the gums, tongue, or inside the cheek or can manifest as jaw swelling or pain or unusual bleeding in the mouth.
- ****WARNING** – some disturbing images next slide**

Slide 26: Sores inside the cheek of a head & neck cancer patient

- Explain that the white patches and sores in the mouth are what we were talking about in the beginning when they were visualizing their lives as normal. These can present as something that you would normally not worry about to begin with. It is important to note that not everyone with a cold sore, lip bite, or swollen taste bud should run to the doctor worried about cancer BUT they should be concerned if it starts to change and not go away.
- ****WARNING** – some disturbing images next slide**

Slide 27: Lumps on the neck of a head & neck cancer patient

- Cancer can also present as unusual lumps. A biopsy of these lesions will yield the diagnosis of cancer. Many head and neck cancer patients are not diagnosed until they have severe symptoms or lumps. The picture shows a stage 4 cancer right after diagnosis which actually can be cured.

Slide 28: Video

Slide 29: Cancer Treatment Options

- Discussion: What kind of cancer treatments are you aware of? Many will draw from television, health classes, or individual experiences with friends or family. This might be an opportunity for personal stories of what they saw. Please note that sometimes this results in an emotional response directly from the person giving the information or others hearing it. Instructors should be sensitive to this and be aware that if someone needs to excuse themselves.

Slide 30: Video

Slide 31: Types of Treatment:

- There is a combination of methods utilized for the treatment of head and neck cancers, including chemotherapy, biologic medications, radiation, and surgery. Simply put we are trying to kill as much of the bad cells as we can in the hopes that the good ones survive and bounce back.
- Discussion: Who can tell me what chemotherapy is? How is it administered? We are looking for simple answers to make an easy association – it's medicine, it's poison, they use needles, it goes through an IV, ect.

Slide 32: Chemotherapy

- Chemotherapy is a mixture of drugs to help kill cells in the body. Treatments last 6-8 weeks and take 4-5 hours to administer. Interesting fact – head and neck cancer patients use chemotherapy not to kill cells in most cases but to increase the effectiveness of radiation therapy treatments.

Slide 33: Other Treatments

- Biologic therapy is similar to chemotherapy but the medicine used genetically engineered to the person's body.
- Radiation therapy was discussed earlier – recap the idea that high power x-rays (in the case of head and neck cancer) are used to kill cells. Treatments are a grueling 6-7 week process with treatments 5 days a week. For those that ask the treatments are 20-30 minutes in length and are done on a linear accelerator.
- Surgery – can happen before radiation to help reduce the size of the tumor or sometimes after to remove what is left.
- Discussion: Since we are talking about surgery of the head and neck, what do you think could happen to the person after the surgery is over? This is a difficult topic to coax out of classes. We are looking to emphasize the fact that this disease effects an area of the body that can't be easily hidden. It also involves functions that are essential to life – breathing, eating, swallowing, etc. We want to drive home the point that this disease is difficult for many reasons.

Slide 34: Side Effects of Treatments

Slide 35: Video

Slide 36: Video

Slide 37: Side Effects

- Since chemotherapy kills the cancer cells, at the same time they also damage some of the healthy cells. This is what causes symptoms like vomiting, mouth sores, and hair loss. Note – chemotherapy for head and neck cancer patients does not cause hair loss and we are using medicine to help with nausea. Fatigue happens for almost all patients and can last for years after.
- Since radiation therapy kills cancer cells by damaging their DNA. At the same time, there is also some damage to healthy cells as well, also resulting in side effects like skin irritation, inflammation of the lining of the mouth, and dry mouth from injury to salivary glands.
- ****WARNING – some disturbing images next slide****

Slide 38: Oral Mucositis in Cancer Patient

- Pictured in the mouth is mucositis – essentially the radiation kills the lining of the mouth. It can also kill taste bud cells (people report that all they can taste is metal or dirt or others) and the ability to create saliva by killing those glands cells.
- ****WARNING – some disturbing images next slide****

Slide 39: Radiation Burns on the neck of a cancer patient

- The burns on the other patient are third degree burns from treatment – this happens to 20-30% of patients.
- *Imagine having to go through treatment and before you are done you get these burns. Patients still have to complete treatment – they still have to wear that mask and because it would make it worse they cannot have any creams or layers between the burn and the hard plastic mask. In many cases patients have to have new masks made during treatment because of weight loss – they have to stretch the new mask on bare skin even if they have burns.*
- Also pictured is a stoma in the neck of a patient who had their voice box removed or a laryngectomy. These patients need an apparatus to speak and something to cover the hole in their neck. Essentially the tube we use to breath is connected to the neck. They can never get it wet or get water down it because it would go directly into their lungs and they would drown.

Slide 40: Cancer Treatment Burden

- The side effects of head and neck cancer treatment extend beyond the physical symptoms we have already mentioned, to include the emotional burden of the diagnosis and the social disruption associated with the diagnosis and treatment of cancer.

Slide 41: Video

Slide 42: Cancer Treatment Burden

- Most, if not all, head and neck cancer patients get a tube inserted into their stomach to feed since their mouth will be a difficult source of nutrition. It takes 20-30 minutes to feed for patients 5-6 times a day. They use meal replacement liquids and then flush with water. That, coupled with treatments, takes up a lot of time.
- Most, if not all, head and neck cancer patients have to have their teeth pulled before treatment because the gums will not support the teeth and the person could choke when they fall out. Dentists are our first line of defense for detecting head and neck cancer – we will discuss that further coming up.
- Patients lose their jobs due to length of treatment, have trouble keeping up with the bills, and have to deal with the public perceptions of their physical change.
- Head and neck cancer patients have some of the highest rates of suicide of any cancer due to the factors listed.

Slide 43: Oral Cancer Screening

Slide 44: Video

Slide 45: Monthly Checks

- Show of hands – how many of your dentists feel your jaw, neck, pull out your tongue, and inspect their whole mouths? It is crucial for the dentist to do thorough oral exams every six months to look for any lesion that may be suspicious for cancer. If yours is not, ask next time you are in!
- You can also do your own oral exam at home! We want to encourage students to know what 'normal' is in their mouths so they can detect any abnormalities. Again remind them that certain things are already normal if they have been in their mouths for a long time.
- Activity – if time allows you can do a mouth exam with the students during the lesson. You will need disposable gloves, tongue depressors and gauze. It is recommended that students pair up and look at each other's mouths and describe what they see. If they have cell phones they can be used as flashlights and cameras to take pictures and review. We do suggest having some mints for them before they start if possible.
- While there may not be any screening for early detection or prevention of head and neck cancer, we can make choices that will reduce the risk of developing cancer later in life.

Slide 46: Head & Neck Cancer Screening

- For some cancers, like colon cancer or cervical cancer, there are screening tests to detect lesions that are likely to become cancer even before the cancerous cells develop. This allows doctors to treat them sooner.
- However, there is no screening for oropharyngeal or head and neck cancer.
- There is currently no way to detect if a person has the HPV strain that causes this cancer until the cancer is detected.
- Often times HPV is contracted at an early age and the head and neck cancer does not happen for decades after.

Slide 47: Preventing Head & Neck Cancer

- Discussion: What can be done to reduce the risk of head and neck cancer? Go back to the main topics discussed as retention reinforcement.

Slide 48: Video

Slide 49: What can be done to prevent head & neck cancer?

- Avoid all tobacco products. This includes cigars, cigarettes, pipes, smokeless tobacco, e-cigarettes, marijuana, and second-hand smoke. Vaping is also categorized as a smoked substance and should be avoided as well. Those who have already started using these products can lower their risk of developing cancer by quitting.
- Avoid excessive drinking. defined as binge drinking, heavy drinking, drinking by pregnant women, or drinking by people younger than age 21.
- Avoid ANY unprotected sexual activity, as this will increase the risk of acquiring HPV infection and thus the development of cancer.
- **Receive the HPV vaccine, which is safe and effective in the prevention of infection and resulting associated cancers.**

Slide 50: The HPV vaccine

- Vaccines help the body build up antibodies or little armies to prevent infections. When you receive the HPV vaccine, the body makes antibodies (or little armies) to fight the virus in the future so you don't get the infection. Since you don't get infected, you will not go on to develop the associated cancers. That is how the vaccine prevents cancer.

Slide 51: Video

Slide 52: The HPV Vaccine

- HPV vaccines were initially licensed and recommended for use in 2006. Since then, it has been shown that HPV vaccines are effective in the prevention of HPV infections and HPV-associated cancers.
- Side effects of the HPV vaccine are similar to those of other vaccines, which include redness and mild irritation at the site of vaccination.
- It is important to know that HPV vaccine works best if received before infection occurs and cannot be used as a treatment for HPV.
- Recommendations for HPV Vaccination (October 2016) (CDC, 2016):
 - 9 to 14-year-olds need only 2 two doses of HPV vaccine six to twelve months apart
 - If start at ages 15 through 26 years need 3 doses of HPV vaccine
 - Newest vaccination available (2016) provides protection from 9 high-risk strains of HPV
 - The FDA has approved the vaccine for adults up to age 45. Although there is no harm in getting the vaccine, there is little data to support prevention of disease past age 26. Getting the vaccine at the recommended age of 9-14 is still the best way to eliminate HPV related cancers.
- The point of this lesson is to spark the conversation between the students, their parents and medical providers. Be sure to remind them to seek relevant information and that the internet (especially social media) does not always provide that.

Slide 53: HPV Facts

This HPV fact sheet can be found on our website and should go home with students to share with their families and physicians.

Slide 54: Awareness, Outreach and Education

- Activity: If time allows, have the students divide into groups. Each group should come up with a way to spread awareness about these cancer risk factors and methods of prevention.

Slide 55: Making Change

Slide 56: *beneath the surFACE*

beneath the surFACE made a change in three ways.

- The first is what we are doing now – education. Getting to the youth in order to make change happen where it is most effective.
- The second is a unique art project involving the community.
- The third is a documentary which combines all of the efforts of the initial project.

Slide 57: The Mask Project

- The radiation therapy masks we saw earlier in the slides are often discarded by patients – they no longer want to see them after all they have gone through.
- *beneath the surFACE* repurposed the masks and distributed them to high school art programs and local artists. Besides a few size restrictions, there were no rules on what they could create. Dozens of masks were completed and the finished pieces were submitted for selection for an art auction to raise money for head and neck cancer patients.

Slide 58: Pictures of Masks

- Here are a few more examples of the masks that were auctioned off.
- The small grassroots project raised over \$18,000 to support head and neck cancer efforts in our community.
- They hope to inspire others to do the same and show a different side to the hardship which comes with treatment and the mask.

Slide 59: So, what's it all about?

Slide 60: Video

Slide 61: A Summary of Content Covered

- A summary of various topics covered in the program ending on prevention as the primary goal of the education.
- Allow time for questions, comments, or suggestions on ways to help spread the word.

Slide 62: beneath the surFACE Trailer

Slide 63: beneath the surFACE Documentary

- This is the documentary we will watch as part of our discussion on HPV and head and neck cancer. Can be used the day of or as a separate lesson. (Link provided on Lesson Plan website)

Slide 64: Questions

- Contact Information for Project Leader or organizations who can assist with additional information.

FOR INSTRUCTORS

Please visit upstate.edu/surface to administer the second part of the student activities

Also, please **take our survey** which is linked via our website or visit:
<https://www.surveymzmo.com/s3/4346549/surFACE-Survey>