

Introduction:

Teenagers engage in risky behaviors. The decision making capacity of the brain is still maturing in adolescence. Social and emotional interaction centers in the brain are very active, making teens more susceptible to peer pressure. While the part of the brain capable of controlling impulses and risky behavior doesn't reach maturity until approximately 25 years of age. Combined these factors lead to higher rates of risky behaviors among teenagers than older age groups. Studies have shown that education about the risks of certain behaviors is not enough to prevent them. However, risky behaviors occur at higher rates among populations who are not informed of the dangers to their health.

Community: Appleton, WI

Appleton is a city of approximately 75,000 people located on the Fox River in Northeastern Wisconsin. It is the county seat of Outagamie county and is part of the larger Fox Cities area.

The Appleton Area School District services Appleton and several smaller surrounding communities with approximately 15,000 students attending three high schools, four middle schools, and fifteen elementary schools. "Health" is a one semester class required for graduation, predominately taken by high school freshmen.



Appleton East High School

Student Body: ~1500

Mascot: Patriot

School Colors: Blue & Red

Health Teacher: Mrs. Murphy



Appleton West High School

Student Body: ~1600

Mascot: Terror

School Colors: Orange & Blue

Health Teachers: Mrs. Streck,
Mrs. Cline-Schubbe



A personal note:

Growing up in Appleton, I was a direct beneficiary of the safe and supportive educational environment provided by teachers and staff of the AASD. Coming home for my primary care clerkship, I knew I wanted to do my community project working with high school students, as my way of giving back to the community that helped form me into the person I am today. When I found out that teachers at two high schools, one my alma matter of West, were looking for someone to talk to their students, this project seemed like a perfect fit.

Project Goals:

- 1) Inform students about the risks of tanning, tattooing, and body piercing.
- 2) Help students separate the myths from the facts about their health.
- 3) Discourage high risk behaviors by encouraging informed decision making.
- 4) Provide a positive role model for high school students.

Pre-Test Analysis:

What do teens know about their health?

Students were asked to answer 'Myth' or 'Fact' to the following 15 statements prior to watching the presentation. The answers were reviewed with students at the end of the presentation. Students scored an average of 8.9 out 15 correct with a median of 9 and a range of 5 – 14 correct. No student got all 15 correct. Questions most frequently **correct** and **incorrect** are highlighted.

Indoor Tanning:

Tanning beds are safer than outdoor tanning.

- ✓ **Myth:** Tanning beds carry a higher risk of cancer and emit UV radiation up to 15 times stronger than the sun. **(90.7% correct)**

Skin cancer affects older people, so I am not at risk now.

- ✓ **Myth:** Just two severe sunburns prior to age 18 can double the chance of developing skin cancer. Even occasional use of tanning beds triples the risk of melanoma. **(100% correct)**

Wisconsin law bans indoor tanning under the age of 16.

- ✓ **Fact.**

Skin cancer is rarely fatal.

- ✓ **Myth:** Melanoma kills 1 in 8. (Squamous cell and basal cell carcinomas are rarely fatal.)

Tanning prior to vacation can protect me from serious sunburn.

- ✓ **Myth:** The protection from tanning is roughly equivalent to wearing SPF 15 sunscreen.

Tattooing:

In Wisconsin, it is legal to get a tattoo at age 17, as long as I have parent permission.

- ✓ **Myth:** Must be 18 or older to get a tattoo in Wisconsin, unless being tattooed by a physician in the course of medical care. This law varies from state to state. **(19.4% correct)**

Tattoos are only skin deep, so blood infections like HIV cannot be transmitted by tattooing.

- ✓ **Myth:** HIV as well as hepatitis B and C and other STIs can be transmitted by tattooing. **(96.3% correct)**

The pigments and dyes used in tattooing are approved by the FDA.

- ✓ **Myth:** None of the dyes/pigments are FDA approved. Some contain metallic pigments that can interfere with medical imaging (MRI).

Tattoos can be ruined by skin stretching that occurs with pregnancy or weight gain.

- ✓ **Fact.**

Its okay if I don't like my tattoo, I can always get it removed by laser.

- ✓ **Myth:** Laser tattoo removal is expensive, painful, and does not always work.

Body Piercing:

Body piercing can be done at age 15 with parent permission. s

- ✓ **Myth:** Must be 16 or older to pierce anywhere other than the ears. **(18.2% correct)**

Home body piercing is legal in Wisconsin and can be done by anyone.

- ✓ **Myth:** Body piercing can be done at home, but must be done by a licensed professional.

Piercing guns are safer than piercing needles.

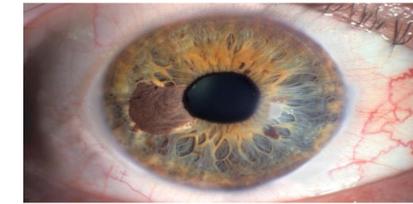
- ✓ **Myth:** Piercing needles carry a lower rate of infection and other complications for body piercing.

Body piercing carries a lower overall health risk than tattooing.

- ✓ **Fact. (37.6% correct)**

Piercing carries the risk of an infection in the heart.

- ✓ **Fact:** Endocarditis is a rare complication of piercing.



- Images from top:
- 1) Basal cell carcinoma
 - 2) Malignant melanoma of the iris.
 - 3) Left: cellulitis on a 10 day old tattoo
Right: keloid scar of a tattoo
 - 4) Infected tongue piercing.

Project:

Teachers at two Appleton high schools made requests for a talk on tanning, tattooing, and piercing for their predominantly freshman health classes. This talk was to be part of a larger unit on health risks and risky behavior. Prior to the presentation, students took a 15-question pre-test asking them to identify whether the statement was a 'myth' or 'fact'. Students then watched a 30 minute presentation giving information on the health risks, unintended consequences of these risky behaviors, and advice for protecting their health, coupled with pictures of what can go wrong. After the presentation, students were encouraged to ask questions. This was an open forum inviting questions about the presentation, other health questions, as well as questions about college and medical school.

What do teens really care about?: Frequently asked questions

Questions about health risks:

> What's the deal with spray tans?

- ✓ Spray on tans contain a chemical called DHA that undergoes an oxidation reaction in the skin to produce a 'tan'. Spray tans do not protect the skin from sun damage. Additionally, DHA can induce DNA damage in cells similar to the way UV radiation does, and may itself pose a cancer risk.

> What does SPF really mean?

- ✓ Sun Protection Factor (SPF) is a measure of how much more sun exposure the skin can withstand before developing a burn. SPF 15 allows a person to stay in the sun 15 times longer than a person not wearing sunscreen before burning.

> Can you still get a sun burn on a cloudy day?

- ✓ Yes. Clouds will filter some UV rays, but some will still penetrate and can result in sunburns. Wearing a daily sunscreen of SPF 15 or higher will help to protect you from everyday exposure.

> I know people who are 17 and have a tattoo. How did they get it?

- ✓ How do people who are 17 get cigarettes? Fake or borrowed IDs are used to obtain tattoos when underage, just as they are used to buy cigarettes and alcohol.

> If I get gauges, then take them out, will my ears return to normal?

- ✓ Your body will do some remodeling, but the hole in your ear will never return to normal.

General health questions:

> Does cracking your knuckles really give you arthritis?

- ✓ No. The pop that occurs with knuckle cracking is indicative of joint laxity allowing a vacuum to form within the joint space. Repetitive joint cracking will not result in arthritis

> Can the flu shot give you the flu?

- ✓ No. The flu shot consists of a killed virus, it cannot give you the flu. However, the nasal spray, FluMist, is a modified version of the influenza virus that is still alive, and can result in an active flu infection.

> Can you get the chicken pox twice?

- ✓ Yes. There are multiple strains of the virus that causes chicken pox. While second infections are often milder, it is possible to get the chicken pox twice.

> I have this lump on my _____ (arm, leg, hand, back, etc). What is it?

- ✓ I don't know. If you are concerned about it you should talk to your doctor.

Challenges:

When it comes to images, there is a fine line between appropriately disgusting to discourage risk behavior and inappropriate for a high school classroom. The idea was to impress upon students the dangers to their health, without becoming just another person lecturing them about 'bad' behaviors.

Purposefully leaving about 20 mins for questions at the end of the presentation, it was critical that students ask questions. Getting teenagers to ask questions about issues related to health and body is hard. Generally, once one brave student started the conversation, the Q&A went smoothly, and occasionally ran over to transition time between classes. The teachers were also helpful, in prompting students with questions.

A few students asked questions that I did not know the answer to. For example, I did not know if hairless cats would burn with prolonged exposure to the sun. (They do.) While I knew the consequences for a licensed tattoo artist or piercer for illegally practicing on someone underage, I had not researched the legal consequences for the minor who engaged in these practices.

Learning Points for a Medical Student:

- ✓ Learn valuable information about the health risks of tanning, tattooing, and piercing that can be applied to clinical counseling of adolescent patients.
- ✓ Gain a better understand of the types of things that teens do and do not think about when it comes to their health.
- ✓ Better appreciation of the range of emotional, physical, and intellectual development present within a school grade level and the impact this has on the educational environment. It is very different to understand the theory of variability in timing and presentation of pubertal development and another entirely to be presented with the entire range of development in a single classroom.
- ✓ Reinforce respect for teachers and the role they play in the psychosocial development of children and adolescents.
- ✓ Practice strategies for building rapport with adolescents while also maintaining a position of authority.
- ✓ Gain confidence in being an active role model in the community.

Acknowledgements:

- > Nicole Streck and Kirsten Cline-Schubbe – Health teachers, West High School
- > Patricia Murphy – Health teacher, East High School
- > Shawn Boogard – Appleton Clerkship Site Coordinator
- > Dr. Jannine Buffo and Dr. Nathan Grunwald – PCC preceptors
- > Mom & Dad Lhost – for housing and feeding me during my rotation
- > Image credits: Google image