



Infectious diseases

Activity 3: Risk Assessment

Overview

Students will perform three activities that engage them with the concepts of probability, risk and risk assessment. They will also review current risk figures relative to infectious diseases and discuss the factors involved.

Suggested length: 90 minutes

Materials

- Student activity sheets
- Answer sheet for mentors
- Pens
- Up to \$12 in cash as an incentive for the students

Instructions

1. Distribute two copies of first activity sheet per student and introduce the rules of the “SKUNK” game:

Objective of the game is to accumulate the greatest number of points over five rounds, one for each of the letters “SKUNK”.

At the beginning of each round, everybody stands. Then the facilitator throws a pair of dice. Every student writes

down the total score, unless one of the dice is a “one” (see below).

After each roll of dice, students can decide either to remain standing and continue playing that round, or sit down, in which case they note the total for that round and cannot play again until the next round. Those who are standing continue to play.

When a “one” comes up, play is over for that round and the player’s points in that column are zeroed. When double “ones” come up, all of the points in previous columns are also zeroed. These rules affect only those who are standing during that roll of the dice. If a “one” or double “ones” turn up at the first roll, everybody takes the consequences.

Do a trial game using the first copy of the activity sheet. Then announce that you will play “for real” using the second copy of the activity sheet and the student with the highest score will win 10% of the score in cash.

2. Distribute the second activity sheet and ask the students to fill in their estimates of the probability for the events listed. Let the students briefly consult with each other if they want.

When all the students have filled in the activity sheet, read the actual results and discuss with the students.



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Discussion

Students come back together and form groups of up to eight. Moderated by a mentor or teacher, students discuss the scenarios in the third activity sheet. For each scenario, they assess the risks involved, they share their experiences with the situations described, and they discuss about their own approach to risk. Use the questions on the activity sheet to stimulate the discussion:

- What can happen to the people involved?
- What are the consequences (major and minor)?
- Are you aware of this happening around you?
- What is your comfort zone (and with what precautions, in case)?

Assessment

Remain in groups, and ask the students if they changed their attitude to risk after this activity, and what led to the change. Ask them also to comment on the major differences in their assessment of the probabilities in the second activity.

The "SKUNK" game is adapted from: Brutlag, D. (1994). "Choice and Chance in Life: The Game of SKUNK" Mathematics Teaching in the Middle School, Vol. 1, No. 1 (April 1994): 28-33.



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Student Activity Sheet 1

S	K	U	N	K



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Activity 3: Risk Assessment Student Activity Sheet 2

On a scale from 0 to 100% (where 0 means impossible, 100 means it will happen for sure), what is the probability of the following events?

<i>Example</i>	0% <input type="text" value="X"/> 100%	18%
A condom breaks during sexual intercourse?	0% <input type="text"/> 100%	
A young person (aged 15-24) contracting an STD this year?	0% <input type="text"/> 100%	
A white person (all ages) contracting an STD?	0% <input type="text"/> 100%	
A Hispanic person contracting an STD?	0% <input type="text"/> 100%	
A Black person contracting an STD?	0% <input type="text"/> 100%	
Dying from influenza or pneumonia?	0% <input type="text"/> 100%	



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Student Activity Sheet 2

Dying from an infectious disease in USA?	0% <input type="text"/> 100%	
Dying from an infectious disease in Latin America or Africa?	0% <input type="text"/> 100%	
Dying from HIV/AIDS in Latin America?	0% <input type="text"/> 100%	
Developing TB for a person with a latent TB infection but who is otherwise healthy?	0% <input type="text"/> 100%	
Developing TB for a person with a latent TB infection and who is infected with HIV?	0% <input type="text"/> 100%	

The statistics are taken from:

Cancer Facts & Figures 2009 – American Cancer Society

Cancer Prevention & Early Detection Facts & Figures 2009 – American Cancer Society

Health, United States, 2008 – National Center for Health Statistics, Centers for Disease Control and Prevention (CDC)

Global Burden of Disease and Risk Factors – World Bank

CDC- ,Sexually Transmitted Diseases in the United States, 2008 (<http://www.cdc.gov/std/stats08/trends.htm>)

WHO information on TB (<http://www.who.int/tb/en>)



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Activity 3: Risk Assessment Mentor Activity Sheet 2

On a scale from 0 to 100% (where 0 means impossible, 100 means it will happen for sure), what is the probability of the following events?

A condom breaks during sexual intercourse?	0% <input type="text" value="X"/> 100%	5%
A young person (aged 15-24) contracting an STD this year?	0% <input type="text" value="X"/> 100%	3%
A white person (all ages) contracting an STD?	0% <input type="text" value="X"/> 100%	0.2%
A Hispanic person contracting an STD?	0% <input type="text" value="X"/> 100%	0.6%
A Black person contracting an STD?	0% <input type="text" value="X"/> 100%	2.1%
Dying from influenza or pneumonia?	0% <input type="text" value="X"/> 100%	2.6%
Dying from an infectious disease in USA?	0% <input type="text" value="X"/> 100%	5%



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Activity 3: Risk Assessment Mentor Activity Sheet 2

Dying from an infectious disease in Latin America or Africa?	0% <input type="text" value="X"/> 100%	23%
Dying from HIV/AIDS in Latin America?	0% <input type="text" value="X"/> 100%	2.5%
Developing TB for a person with a latent TB infection but who is otherwise healthy?	0% <input type="text" value="X"/> 100%	10%
Developing TB for a person with a latent TB infection and who is infected with HIV?	0% <input type="text" value="X"/> 100%	50%

The statistics are taken from:

Cancer Facts & Figures 2009 – American Cancer Society

Cancer Prevention & Early Detection Facts & Figures 2009 – American Cancer Society

Health, United States, 2008 – National Center for Health Statistics, Centers for Disease Control and Prevention (CDC)

Global Burden of Disease and Risk Factors – World Bank

CDC- ,Sexually Transmitted Diseases in the United States, 2008 (<http://www.cdc.gov/std/stats08/trends.htm>)

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Activity 3: Risk Assessment Student Activity Sheet 3

Smoking

Tracy who is 17 is also pretty and outgoing. She likes her active life, especially when it means dancing! She lives with her parents who are both smokers, and while they don't smoke much (about 5 cigarettes a day) and try to smoke outdoors, she constantly smells the smoke at home. She tells her parents that smoking is bad, but it seems like that doesn't make much difference in their habit...

- What are the consequences of smoking and second hand smoking?
- Do you or members of your family smoke? How are you exposed to smoke in your personal life?
- Select one of the options below to indicate your opinion regarding smoking:

<i>It's acceptable to smoke</i>	<i>It's acceptable to smoke, unless...</i>	<i>I don't know</i>	<i>It's acceptable to smoke, unless...</i>	<i>It's unacceptable to smoke</i>



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Activity 3: Risk Assessment Student Activity Sheet 3

Catching the flu

Michelle and François always hang out together; they usually meet at home, play games and watch TV. On the weekends, they go to the mall where they meet their friends. Sometimes they go to see a movie, but usually they just walk around among the crowds in the mall. Last week Michelle and François saw a couple of people walking in the mall with a white masks on their mouths, and they realized that maybe it's a good way to prevent the flu...

- What can happen to Michelle and François if they don't start using masks?
- What are the consequences if they do use the masks (major and minor)?
- Are you aware of people wearing masks around you?
- Select one of the options below to indicate your opinion regarding wearing masks to prevent the flu:

<i>It's acceptable to spend time in crowded places</i>	<i>I think it's OK to be in crowded places, unless...</i>	<i>I don't know</i>	<i>I wouldn't like to be in crowded places, unless...</i>	<i>It's unacceptable to spend time in crowded places</i>
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Sex

Peter and Wendy are both 18, and have been seeing each other for over a year. Since they are totally committed to each other and have both had short but intense relationships before, they know how important it is to be honest with each other. They are both ready to start having sex and have discussed using condoms. It wouldn't be the first time for Peter – but it would be the first time for Wendy.

- What can happen to Peter and Wendy if they start having sex with condoms?
- What are the consequences (major and minor) of what they are planning to do?
- Are you aware of this happening around you?
- Select one of the options below to indicate your opinion regarding having protected sex:

<i>It's acceptable to have protected sexual intercourse</i>	<i>Normally it's OK to have protected sexual intercourse, unless...</i>	<i>I don't know</i>	<i>People don't find it acceptable to have protected sexual intercourse, unless...</i>	<i>It's unacceptable to have protected sexual intercourse</i>
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Activity 3: Risk Assessment Student Activity Sheet 3

Drinking

It's only 2 PM, but Jose, a high school student, has already had two alcoholic drinks. He doesn't really know why he drank already – he still has to do his homework and have dinner with his parents. He doesn't think he is drunk: he feels a bit sleepy and yawns more than normal, but feels in control of things. However, by dinnertime he hasn't finished his homework yet...

- What can happen to Jose?
- What are the consequences (major and minor) of what he did?
- Are you aware of this happening around you?
- Select one of the options below to indicate your opinion regarding underage drinking:

<i>Underage drinking is acceptable</i>	<i>Normally it's OK to drink underage, unless...</i>	<i>I don't know</i>	<i>People don't find underage drinking acceptable unless...</i>	<i>Underage drinking is unacceptable</i>