

## Day 9 Make up Assignment

### Drug & Alcohol Driving Awareness Program (DADAP)

Refer to your handbook from class. Find pages 21-23. If you cannot find your handbook you can print the pages by clicking on the link [dadap.pdf](#) on the website.

Day 9 is the Pre-Test and Hour 1 & 2 of the worksheet

Follow along in the reading here and fill out the parts of your booklet that are missing. When you finish filling out the entire worksheet for Hour 1 & 2 take pictures of the pages and email them to [roadworthy7600@sbcglobal.net](mailto:roadworthy7600@sbcglobal.net). Take any quizzes and watch any videos here as you come to them.

DADAP Program Worksheet (Click on the [dadap.pdf](#) found on the Make Up day webpage to view and print a pdf version of worksheet)

### ***DAY 9 Hour 1***

Obj.: The students will gain knowledge about the dangers of drugs and alcohol and apply a zero tolerance for drug and alcohol use to their own driving.

Over the next few lessons, we will take a serious look at the topic of drugs and alcohol, how they effect the body and the driving task. You will gain understanding of the following:

- The types of drugs and they are effects on the body
- The signs of a potential drug problem
- The effects of drugs on the driving task
- The physical and emotional effects of alcohol
- The effects of alcohol on the driving task
- BAC and alcohol elimination
- The laws related to alcohol in Texas
- The risks and consequences of drinking and driving
- How you can make healthy choices related to drugs and alcohol

If you are making up DAY 9, please take the Pre-Test here.

## DADAP Pre-Test

In this module we will cover the first three topics listed above. Let's consider for a moment why these topics are important. This topic must be covered simply because lives are at stake. When people make poor choices related to drugs, alcohol, and driving, people die. Each year in the United States more than 100,000 people are killed by alcohol and illegal drug use. This is an extremely large number. Compared to the number of people who die from diseases such as the flu, this number is nearly 2-3 times as large. It is difficult to imagine exactly how large that number is. Here's an example that might help you to understand the enormity of that number of deaths. Texas Tech University has a football stadium. It seats 52,882 people. This means that you could feel not only one but two Texas Tech football stadiums with the number of people that die in drug and alcohol related deaths every year in the United States. Keep in mind that this number of 100,000 deaths, includes people who abuse drugs and alcohol and died by overdose and murders associated with illegal drug sales and activities.



In addition to those staggering numbers, data also suggests that drivers who are impaired by drugs and or alcohol kill at least one person every 30 minutes. That's equivalent to nearly 50 people a day and more than 18,000 people a year. These numbers reflect the number of deaths in the United States caused by people who choose to drive while or after using drugs or alcohol. Another way to put these numbers into perspective is to realize that in the time it takes you to read this section, four people will die in a car accident related to drugs and alcohol.

To help you get an idea of how many 18,000 people is, think about where the San Antonio Spurs basketball team plays their games. The AT&T Center in San Antonio has a seating capacity of 18,500 people. You could fill the entire AT&T Center with the number of people who die in car crashes each year related to drugs and alcohol.

Knowing this information, you can begin to understand the seriousness and the importance of covering these topics in Driver education. We have said before that having a driver's license brings much responsibility. When you choose to drive a car, you choose to do so responsibly and safely and you must decide to drive only when you are physically and mentally able to do so.



Drugs can be categorized and in a variety of ways. Consider the following:

- Legal vs. Illegal
- Uppers vs. Downers
- Most harmful vs. Least harmful
- Addictive vs. Non-addictive
- Method of Administration
  - - injection
    - ingestion
    - inhalation

In addition to these categories, drugs can also be grouped by the effects they have on the person and body.

The three categories are hallucinogens, stimulants, and depressants. Let's have a closer look at each category.

### ***Hallucinogens***

Drugs in this category include LSD, PCP, ecstasy, GHB, magic mushrooms, and others. These types of drugs distort the way a person thinks, sees, and acts. They cause memory problems, speech difficulties, anxiety, depression, and even paranoia. When a person is under the influence of this type of drug, their heart rate increases the blood pressure increases, as does the body temperature. In addition, people using this type of drug have a loss in muscle coordination. These drugs are particularly dangerous because they can lead to heart and lung failure, coma, and death.



### ***Stimulants***

Drugs in this category include amphetamines, ephedrine, cocaine, caffeine, and tobacco. These types of drugs give people a temporary feeling of alertness and energy. They increase the heart rate, the respiratory rate, and blood pressure. In addition they may lead to anxiety, sweating, dilated pupils, headaches, tremors, hallucinations, And paranoia. They tend to reduce appetite and muscle coordination. These drugs can lead to stroke, heart failure, and death.



### ***Depressants***

Drugs in this category include alcohol, marijuana, heroin, solvents, and barbiturates. These types of drugs reduce the activity of the central nervous system causing sleepiness, slurred speech, and staggering. They also interfere with a person's judgment. These drugs can lead to severe respiratory depression, coma, and death. Drugs such as marijuana, heroin, and barbiturates when mixed with alcohol become extremely dangerous because of the synergistic effect they have on the body.



The ***synergistic effect*** can be defined as two or more substances that produce the combined effect greater than the sum of their separate effects. This basically means that when you mix different drugs in the same category the combined effect of the drugs is much greater than if you were taking only one drug in the category. Famous stars such as Michael Jackson, Whitney Houston, Heath ledger, and Elvis Presley have all died in part due to the synergistic effect of the drugs that they ingested.

### **How do you know if someone has a drug problem?**

People who are abusing drugs typically exhibit certain behaviors. Changes in behavior will often be seen at home, at school, and in their physical and emotional interactions. Usually these changes are drastic and obvious if one is looking for them, however sometimes the changes can be subtle. The key is to look for changes in the way the people around you have acted in the past. Don't ignore these changes. Reach out and see if you can find help.

### ***Signs of a problem at home***

- Loss of interest in family activities
- Disrespect for family rules
- Withdrawal from responsibilities
- verbally or physically abusive
- Sudden increase or decrease in appetite
- Disappearance of valuable items or money
- Not coming home on time
- Being vague about where they are going
- Constant excuses for behavior
- Spending a lot of time in their room
- Lying about activities
- Finding the following: cigarette rolling papers, pipes, small glass vials, plastic bags, remnants of drugs such as seeds etc

### ***Signs of a problem at school***

- Sudden drop in grades
- Loss of interest in learning
- Truancy
- Sleeping in class
- Poor work performance
- Not doing homework
- Defiance of authority
- Poor attitude toward sports or other extracurricular activities
- Reduce memory and attention span

### ***Signs of a problem: physical and emotional changes***

- Changing friends
- unexplainable mood swings and behavior
- Negative, argumentative, paranoid or confused, destructive, anxious
- Overreacts to criticism
- Ask rebellious
- Sharing few if any of their personal problems
- Don't seem as happy as they have been in the past
- Overly tired or hyper active
- Drastic weight loss or gain
- Unhappy and depressed
- cheats, steals
- Always needs money, or has excessive amounts of money
- Sloppiness in appearance

## **Drugs and the Driving task**

The following is a list of five ways that drugs will affect you while you are driving a vehicle.

- Decline in coordination, perception, and reaction time. Driving requires focus. You are not the only one on the roadway and you must pay attention to your surroundings and to what other drivers are doing. You must use keen observation skills and be able to predict the actions of other drivers. When your coordination and perception is impaired you will not be able to predict, react to, and avoid hazardous situations.
- Reduced ability to maintain speed and to brake appropriately. When you drive and cannot maintain your speed you draw attention to yourself. When you go fast and then slow and then speed up and then slow down you are exhibiting signs of impaired driving. Similarly, when you break at inappropriate times or when it is not needed this is also A sign of impaired driving. Police officers are trained to look for these types of behaviors as they indicate the driver may be having difficulty and maybe under the influence of drugs or alcohol.

- Reduced ability to maintain lane position. The lane markings are there for a reason, to help you stay in the appropriate lane. People who drive under the influence of drugs or alcohol have difficulty staying in the center of their lane and tend to drift onto or over the lane markings.
- Reduced ability to monitor environment and process information. For example: other vehicles, traffic signs and signals, pedestrians. Driving requires that you attend to many different pieces of information coming at you all at one time. You must be able to see and react to other vehicles, traffic signs and signals that may be changing, and people in and around the roadway where you are traveling. When a driver is under the influence of drugs or alcohol it is difficult for them to pay attention and stay focused on all of the information coming at them from other roadway users.
- Reduced response to emergency driving situations. Your ability to respond to hazards and emergency situations is diminished when you are under the influence of drugs and alcohol. One example is driving off the roadway. When, for whatever reason, your car travels off the roadway the appropriate reaction is to grip the steering wheel firmly, take your foot off the accelerator, and travel off the roadway until you are able to safely return to the pavement. The two things you never want to do in this instance is to jerk the vehicle back onto the roadway and slam on the brakes. People, when driving under the influence of drugs or alcohol, often react incorrectly and are startled when their vehicle leaves the roadway. The tendency is to jerk the wheel and slam on the brakes. This is a very dangerous reaction and can easily cause a vehicle to roll over or call the driver to lose control of the vehicle leading to an accident.

## ***DAY 9 Hour 2***

### ***Physical Effects of Alcohol***

#### **Vision**

When you consume large amounts of alcohol, your body is affected in a variety of ways. One of the most drastic and most dangerous changes occur to your vision. When your body is under the influence of alcohol you will have a difficult time focusing and attending and processing information that comes to your brain through your eyes.

- Alcohol narrows the visual field and causes what we call tunnel vision which occurs when your eyes tend to only look straight ahead and focus on one thing at a time rather than using all of your vision including your peripheral vision to help you see side to side as well.

- Another effect on vision, alcohol decreases your depth perception so things seem closer or farther away than they actually are. One example of how you use depth perception when you drive, occurs when you are deciding whether it is safe to pull out into traffic or not. When you are under the influence of alcohol you will have a difficult time determining how close or far away and approaching car is and your miss judgment of the distance could cause you to pull out in front of an approaching vehicle because you did not determine the correct distance, space, or time it would take for that vehicle to overtake you.
- In addition to the problems of tunnel vision and decreased depth perception, alcohol also reduces your ability to see especially at night. This is an extremely serious problem because most people who drink do you sew in the evening and nighttime hours. Then, after dark, late in the night, they get on the roadway and their vision is impaired. In addition to having trouble seeing at night, alcohol also reduces your resistance to glare which adds to the problems of night driving by making it even more difficult to see when a car's headlights are approaching.
- Finally, alcohol also lessons your eyes sensitivity to color. This also makes it difficult to see, discern shapes and sizes, and you may be slow to react to the color of a traffic light or stop sign.

## Vital Organs

Long-term abuse of alcohol damages several different organs that you must have in order to live. The brain, the heart, the liver, and the pancreas all incur damage when a person drinks too much alcohol over an extended period of time. Alcohol abuse may also indirectly result in several different types of cancer including cancer of the esophagus, stomach, liver, pancreas, and colon. The picture shows you what a healthy liver looks like and what a damaged liver with cirrhosis looks like after prolonged alcohol abuse. A healthy liver has a reddish brown, smooth appearance while the damaged liver has a charred

appearance. The liver is the organ in your body through which alcohol is eliminated. Overtime with prolong alcohol abuse, the liver simply cannot function as it is intended. Cirrhosis of the liver can occur at any age when alcohol is ingested frequently and in large amounts.



## Emotional Effects of Alcohol

When a person is under the influence of alcohol, their mental faculties are affected in a variety of ways. Alcohol affects a person's ability to concentrate especially when several sources of information are all incoming at the same time. When sober, the human brain is able to multitask and handle a variety of inputs all at the same time. When a person has been drinking, the ability to process information is impaired and a person showing the signs of drunkenness will be able to only focus on and process one piece of information at a time.

Similarly, under the influence of alcohol, the brain is less capable of storing and retaining information. Memory is affected and after a night of drinking, a person will have trouble recalling and remembering events that have happened during the time that they were drunk. You may have heard of people who have "passed out" after consuming alcohol at a slow rate. This is the way your body protects itself when a you drink too much alcohol but do so over an extended period of time. Passing out is basically your body saying enough is enough and makes you go to sleep. Sometimes, if enough alcohol has been consumed Over a very short period of time a person may be subject to a "black out" which means they may still be awake and functioning but they are brain shuts down and they will not remember many of the events that transpired.

The effects of alcohol on the brain are well documented. Scientists have extensively studied the effects of alcohol on the brain in the long term. take a look at this picture, a scan of two brains, each of a person who is 15 years old. The red area indicates brain activity during a memory task. You can see in the brain on the left of a

15-year-old who does not consume alcohol, the red area is extensive showing the brain hard at work to remember. The brain on the right is also of a 15-year-old however this 15-year-old consumes large amounts of alcohol regularly. Given the same memory task you can see how very little brain activity there is and how hard it is struggling to remember.

When young people choose to consume large amounts of alcohol at a very young age, the growth of their brain is affected. Scientist believe that the brain of a female continues to grow all the way until age 25. The brain of a male continues to grow all the way to

the age of 29. Brain growth and function are negatively impacted when young people consume addictive drugs and alcohol. This damage cannot be reversed. This is one reason why lawmakers have made the legal drinking age 21, to try and deter young people from drinking.





You may have heard the expression “you are a funny drunk.” When a person consumes large amounts of alcohol, their personality often changes in one way or another. Some people lose their inhibitions and become quite outgoing, the life of the party. Other people may exhibit more anger or anxiety when consuming alcohol. Some people may become more aggressive and exhibit daredevil tendencies. The more alcohol a person consumes the more emotional control is reduced. This loss of control, coupled with impaired vision and attention, can be a deadly combination when you choose to drive a car after you have been drinking.

Finally, drugs and alcohol are addictive. When you consume alcohol, your body will begin to crave the feeling it gets when you drink. As time passes, you will need to consume more and more of the alcohol or drug in order to get the desired effect. The body will learn to illuminate the alcohol and drugs more quickly and you will need to drink more often or consume more to achieve the desired outcome. This negative effect is called tolerance and often promotes people to progress from alcohol to drugs to achieve the desired effect more quickly and easily.

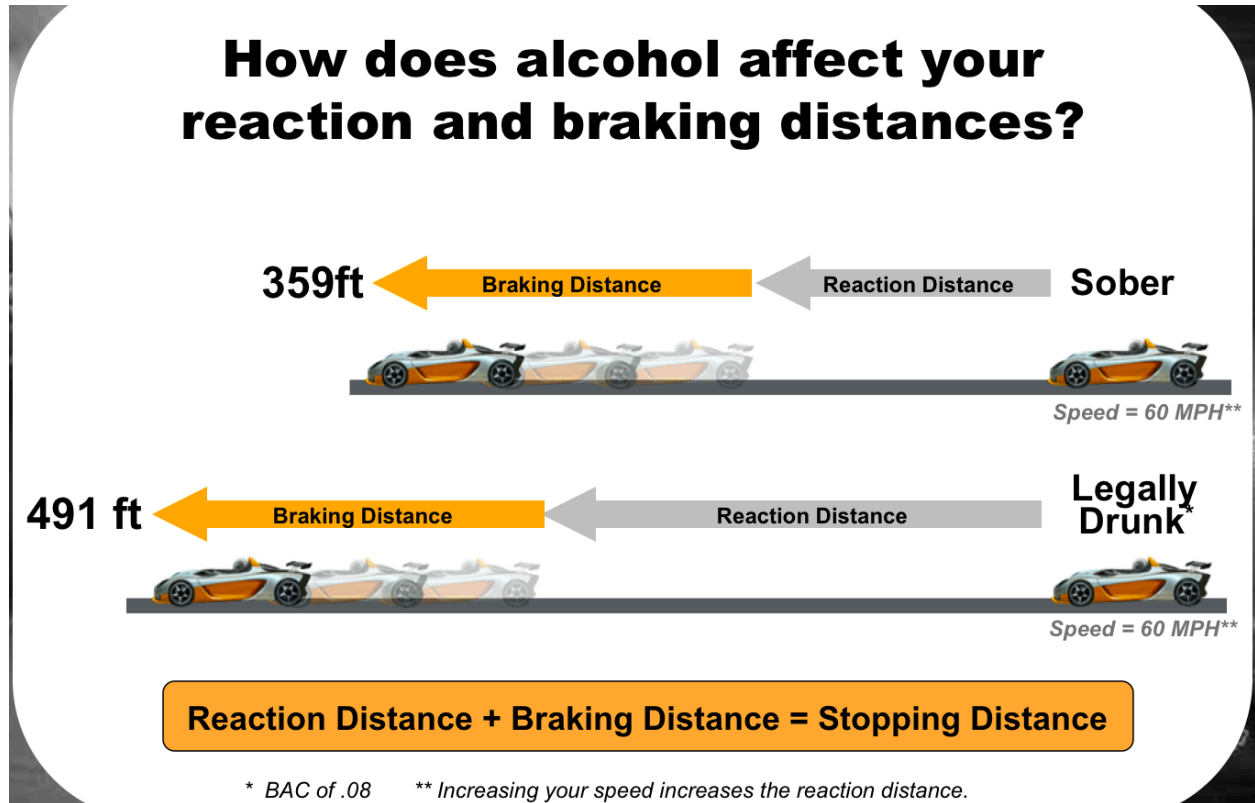
Consider the following ways alcohol will affect you when driving:

1. Decline in coordination, perception, and reaction time. Driving requires focus. You are not the only one on the roadway and you must pay attention to your surroundings and to what other drivers are doing. You must use keen observation skills and be able to predict the actions of other drivers. When your coordination and perception is impaired you will not be able to predict, react to, and avoid hazardous situations.
2. Reduced ability to maintain speed and to brake appropriately. When you drive and cannot maintain your speed you draw attention to yourself. When you go fast and then slow and then speed up and then slow down you are exhibiting signs of impaired driving. Similarly when you brake at inappropriate times or when it is not needed this is also a sign of impaired driving. Police officers are trained to look for these types of behaviors as they indicate the driver may be having difficulty and maybe under the influence of drugs or alcohol.
3. Reduced ability to maintain lane position. The lane markings are there for a reason, to help you stay in the appropriate lane. People who drive under the influence of drugs or alcohol have difficulty staying in the center of their lane and tend to drift onto or over the lane markings.
4. Reduced ability to monitor environment and process information. When a driver is under the influence of drugs or alcohol it is difficult for them to pay attention and stay focused on all of the information coming at them from other roadway users.
5. Reduced response to emergency driving situations. Your ability to respond to hazards and emergency situations is diminished when you are under the influence of drugs and alcohol.

### **How does Alcohol affect your reaction and braking distances?**

We have talked before about stopping distance. Stopping distance is defined as the distance it takes you to bring your vehicle to a complete stop from a particular rate of speed. If you recall, part of the time it takes you to stop your car is called reaction time or reaction distance. This is

the time it takes, or the distance you travel before you to realize there is a problem, react to the problem and decide to step on the brake.



In addition to this distance traveled, is the amount of time and distance it takes once you apply the brake and bring your vehicle to a complete stop, braking distance. Let's look at an example. In the chart above, you see an example of a sober driver traveling at 60 mph. Total stopping distance, reaction distance plus braking distance, is 359 feet.

In the lower picture, depicting a driver who is legally drunk traveling 60 mph, the total stopping distance increases to 491 feet. Notice the orange arrow remains the same in both scenarios because the performance of the vehicle does not change. When you examine the gray arrow you will see that the legally drunk driver requires much more distance to react and to decide to step on the brake. This is because alcohol and drugs impair your thought processes, cause you to be less alert, and make it harder for you to react to a hazard or emergency situation. The faster you are traveling, the larger the reaction distance becomes. Speed combined with inattention and loss of the ability to react quickly creates a deadly result.

## What is BAC?

The letters **BAC** stand for *blood alcohol concentration*. This is a measure of the percentage of alcohol in a person's blood after drinking. In Texas, you are not considered legally intoxicated until your blood alcohol content reaches .08%. This amount is just a little bit less than 1%. In other words, if you took all the blood in your body, you would be considered legally drunk if a little less than 1% of your blood had alcohol in it.

When you drink an alcoholic beverage, it enters your body through your mouth and travels into your stomach. From there the alcohol is absorbed directly through the walls of the stomach and small intestine, and enters directly into the bloodstream from where it travels throughout the body and into the brain.

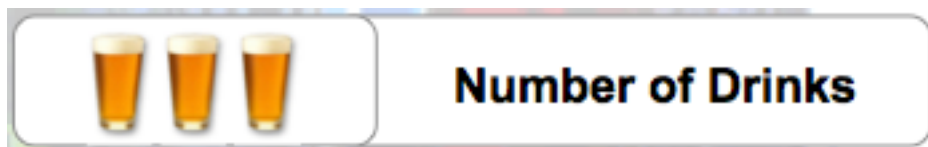
It only takes 30 to 70 minutes for alcohol to be absorbed and measured in the bloodstream after a person has a drink. In other words, it takes time to register alcohol in the blood. If you were to drink a beer or two in a relatively short period of time, your blood may not indicate any alcohol level for up to 70 minutes after you took your first drink. For this reason, if you were pulled over by a police officer for suspicion of drunk driving, they may administer a breathalyzer test to you at the time of pulling you over. If you are found to be over the limit and arrested, they may test you again once they take you to the station, sometime later. Often the amount of alcohol detected at the time of the traffic stop versus the amount of alcohol detected with the later test is often higher because more alcohol has had time to be absorbed into the bloodstream.

Because people react differently to alcohol, it is very difficult for a person to judge his or her own **BAC**. A person may not feel or act drunk or impaired but may be still legally over the limit. The bottom line is that no matter what your blood alcohol content may be, you should never drive after any amount of alcohol.

## What affects BAC?

There are five things that determine the level of **BAC**.

**Number of drinks:** How many alcoholic beverages you can soon will have a direct effect on the alcohol level in your blood. Clearly drinking a six pack versus one wine cooler will have a larger effect on your BAC.



**Rate of consumption:** this has to do with how quickly you drink. If you sip one glass of wine over a period of two hours, compared with throwing back three beers in 30 minutes, clearly

drinking fast will have a larger effect on your BAC.

## Rate of Consumption



Gender: if I were to ask you who gets drunk faster, would you say women or men? Most of us would guess that women get drunk faster, and you would be correct however probably not for the reasons you were thinking. There are two main reasons why women get drunk more quickly than men. The first has to do with an enzyme called alcohol dehydrogenase. This enzyme is responsible for breaking down alcohol in the body and men's bodies have more of this enzyme than women. For this reason, men can drink more and less of the alcohol enters their bloodstream. The second has to do with the percent of body fat that men and women carry. A typical man, in good physical condition, will have 6% body fat. A typical woman, in good physical condition, will have 12% body fat. Alcohol likes fat. Fat absorbs alcohol so the more fat your body has the more alcohol it absorbs. For this reason, women retain alcohol for longer periods and more quickly than men.



## Gender

Weight: the more a person weighs the more alcohol they will be able to absorb: remember alcohol likes fat and it is absorbed easily and quickly into fat cells. The more a person weighs the more they will be able to drink before they are over the legal limit of .08 BAC.

## Weight



Food eaten: you may hear people say "I am going to drink tonight so I better eat a good dinner". This is somewhat of a myth however it is proven that if you have a full stomach, alcohol is less able to enter the bloodstream as quickly as it would if you were drinking on an empty stomach.



## Food Eaten

## Does the type of alcohol affect BAC?

### Does the type of alcohol affect BAC?



**12 oz. Beer**



**5 oz. Wine**



**1.5 oz. Spirits**

Take a look at the picture above. It shows a 12-ounce glass of beer, a 5-ounce glass of wine, and the 1.5 ounce shot of liquor. If I told you that on Monday, I drink five 12-ounce beers, on Tuesday I drank five 5oz glasses of wine, and on Wednesday I drank five 1.5 oz shots of liquor. Which day would you think I drank the most? Or to put it another way, on which day would I be most drunk?

Many people would guess Wednesday because five shots of liquor is a lot and liquor seems is stronger than other types of alcohol. Let's think about this a little bit more as we talk about each of the different types of alcoholic beverages. When you get old enough to do so, you may choose to have an alcoholic beverage every now and then. It is important when you choose to drink alcohol, that you understand what it is that you are actually drinking and how it might affect you. Let's start with a 12-ounce beer.

### ***BEER***

Classic American beers like Budweiser And Coors each have 5% alcohol per ounce in a can or bottle. Keep in mind this is not the light version of these beers such as Bud Light or Coors light. So, if you are drinking a 12 ounce can or bottle of beer, you would multiply the number of ounces times 5% which would give you a total of .60 of pure alcohol content in one 12 ounce can or bottle of beer. When you choose to drink a "light" beer the alcohol content drops to 4.2%. If you choose an imported beer such as Heineken, Dos Equis, or Stella Artois, the alcohol content increases to 6 - 8%. Some beer manufacturers make products with the word "ice" in them. These types of beers have a higher alcohol content than regular beer usually around 6%. In the United

States, all beers are required to have the alcohol content percentage listed on the label so it is easy to know what you are buying and how much alcohol content it has.

## ***WINE***

Now let's have a look at wine. Similarly to beer, all wine bottles in the United States are required to have the alcohol percentage listed on the bottle. While a typical serving size for beer is 12 ounces, the typical serving size for a glass of wine is 5 ounces. This is because the percentage of alcohol in wine is higher than it is in beer. So again, if we do the math, we take the alcohol content, 12% and multiply it by the serving size, 5 ounces. Again, we get .60 of pure alcohol content in a 5 ounce glass of wine. The amount of alcohol content in a 5-ounce glass of wine is the same as in a 12 ounce glass of beer. What changes is the serving size.

## ***LIQUOR***

Now let's have a look at liquor. Shots are typically measured in 1.5-ounce servings. The alcohol content in liquors such as Bourbon, Vodka, Tequila, and Whiskey is described in terms of their proof. Most of these are what we call 80 proof. This information is required to be listed on all bottles of liquor. Again, to do the math, in order to find the percentage of alcohol you take the proof and divide by two. If a bottle of liquor is 80 proof, then it is 40% alcohol. Again, we must take the percentage of alcohol and multiply it by the serving size which is typically 1.5 ounces. If we do the math, we again find that a shot of liquor has .60 pure alcohol content. The difference again is in the serving size.

Not all liquors are created equal. Some liquors that have a number in the name such as Rum 151, have a much higher percentage of alcohol than normal. The math remains the same however. The 151 represents the proof so we divide by two and can see that the alcohol content is 75%. If you make a drink with a 1.5 ounce shot of this type of liquor you will be drinking nearly twice as much alcohol as you would if you drink a regular type of liquor such as Crown Royal or Smirnoff Vodka.

Most people who choose to drink liquor do not drink plain shots. They typically mix the liquor with other ingredients to create a variety of mixed drinks. Let's examine a few popular mixed drinks.



### *Margaritas*

Margaritas are made with three different liquors. So, when you choose to drink a margarita whether it is frozen or on ice you are actually drinking three times the amount of alcohol although only one of the alcohols is the 80 proof, when you add the other two you are increasing the amount of alcohol you are consuming.

### *Hurricanes*

Hurricanes are particularly deceiving because they are mixed with fruity flavors that mask the taste of the alcohol. A hurricane is actually made with three shots of 80 proof alcohol making it one of the strongest drinks. this type of drink is often referred to as a "girly



drink” because it is fruity and flavorful and doesn’t taste much like alcohol. These types of drinks can be especially dangerous. Keep in mind that when you drink one hurricane it’s actually like you are downing three straight shots of liquor. That is equal to three drinks that each have only one shot of liquor.

### *Long Island Iced Tea*

This is a very popular drink especially in the summer when it is warm. The name however is very deceiving. This particular mix drink has absolutely no tea in it. This particular alcoholic drink, has five shots of various liquors and then a splash of Coke is added to give it the color of iced tea. Drink two of these and you have consumed 10 shots of liquor. In reality if you mixed each one of these shots by themselves you would’ve consumed 10 alcoholic beverages. The danger comes when you mix them all together and you lose track of exactly how much you have had to drink.



Let’s revisit my question from earlier. Which day would I be consuming more alcohol? Monday when I only drink beer? Tuesday when I only drink wine? Or Wednesday when I only had liquor?

In reality each of the days would be the same because they each have .60 pure alcohol content. The problem comes when we begin to drink mixed drinks with multiple shots. Remember the hurricane, it has three shots of 80 proof liquor. If I drank two of them I would have consumed six shots of 80 proof liquor which is the same as a six pack of beer.

**Does the type of alcohol affect BAC?**

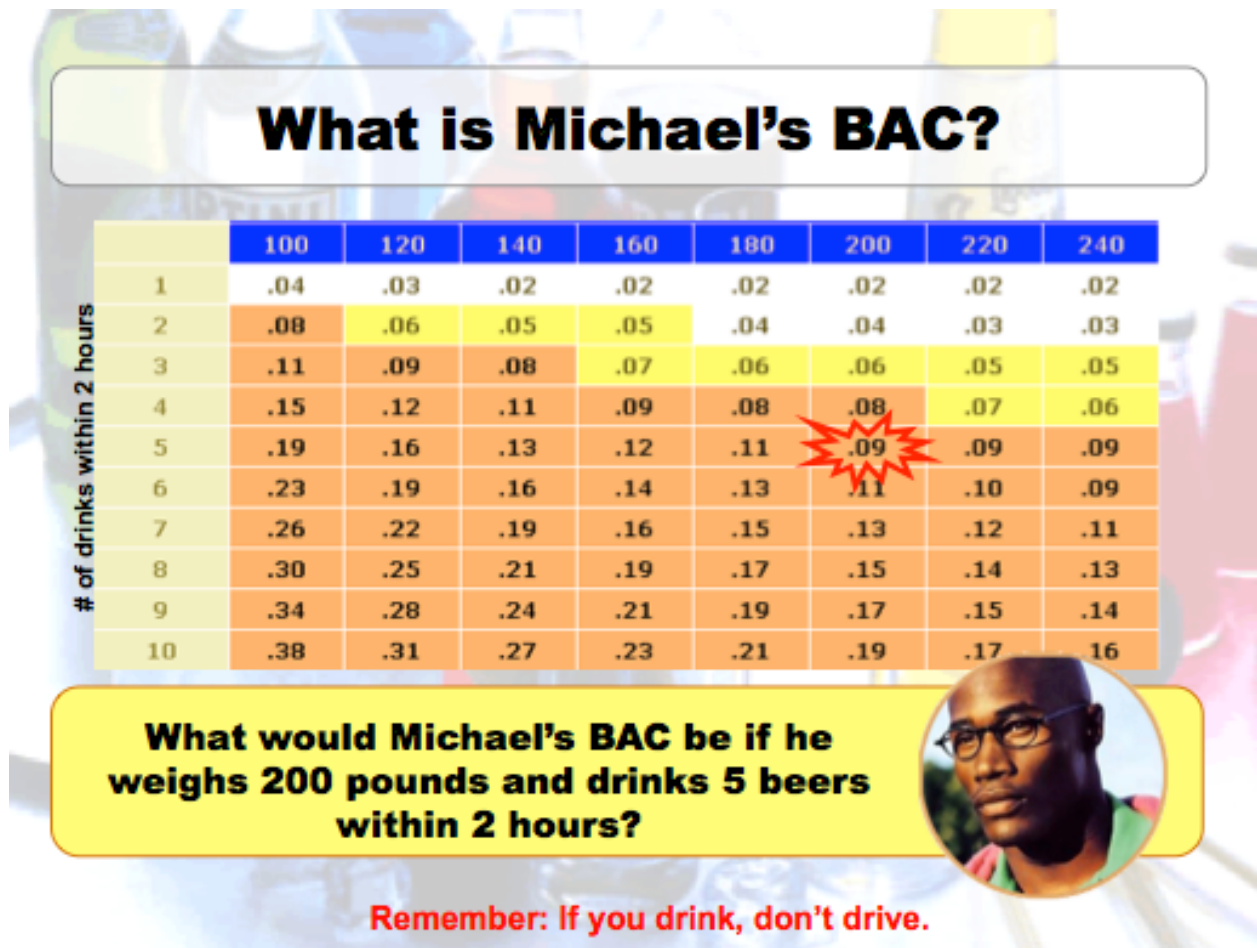
**12 oz. Beer** = **5 oz. Wine** = **1.5 oz. Spirits**

An infographic with a background of various alcohol bottles and glasses. At the top, a white rounded rectangle contains the question "Does the type of alcohol affect BAC?". Below this, three white rounded rectangles are arranged horizontally, each containing an image of a drink and a label. The first is a glass of beer labeled "12 oz. Beer", the second is a glass of wine labeled "5 oz. Wine", and the third is a shot glass of spirits labeled "1.5 oz. Spirits". Red equals signs connect the three boxes.

So to answer my question, the reality is I would be equally intoxicated each day of the week because the pure alcohol content is equal in all of the different types of alcohol the only thing that changes is the type of alcohol and the serving size.

Let's look at some scenarios.

Meet Michael, a 200 pound male.



You may be wondering if the number of drinks effects your BAC. Let's examine the following charts and think about these scenarios. When you look at the chart you will see the left-hand side indicates the number of drinks consumed within two hours. Across the top in the blue part you will see numbers that indicate the weight of the person consuming the alcohol. As the number of drinks increases so does the BAC, however it does not increase at the same rate when the weight of a person increases. Notice the yellow portion of the chart. *Keep in mind .08 BAC is the legal determination of intoxication.*

Let's look at an example. This is Michael and he weighs 200 pounds. If he drinks five beers in a two hour period of time what would his BAC be?




First you would go across the top of the chart and find the column for someone weighing 200 pounds. Then go down the chart and find the row that indicates five drinks within two hours. When these two intersect you will see that Michael's BAC is .09 and he would be over the limit and considered legally intoxicated after consuming five beers in two hours.

Keep in mind that just because you might be under the legal limit for intoxication, doesn't mean that you are not exhibiting drunken behavior. Earlier we talked about tolerance. Someone who has never had alcohol before or drinks very seldom, may exhibit drunken behavior sooner than someone who partakes in alcoholic beverages regularly. For example, if we again look at the chart, let's assume Michael rarely drinks alcohol. One day he decides to have some beers and drinks them very quickly. Let's use the chart again.

## What is Michael's BAC?

	100	120	140	160	180	200	220	240
# of drinks within 2 hours	1	.04	.03	.02	.02	.02	.02	.02
	2	.08	.06	.05	.05	.04	.04	.03
	3	.11	.09	.08	.07	.06	.06	.05
	4	.15	.12	.11	.09	.08	.08	.07
	5	.19	.16	.13	.12	.11	.09	.09
	6	.23	.19	.16	.14	.13	.11	.10
	7	.26	.22	.19	.16	.15	.13	.12
	8	.30	.25	.21	.19	.17	.15	.14
	9	.34	.28	.24	.21	.19	.17	.15
	10	.38	.31	.27	.23	.21	.19	.17

**What would Michael's BAC be if he weighs 200 pounds and drinks 5 beers within 2 hours?**



Remember: If you drink, don't drive.

Michael weighs 200 pounds and let's say this time he drinks three beers in a two hour time period. If you go across the chart you will see that he is at .06 BAC which is under the legal limit. This number is under the legal limit but because he does not consume alcohol on a regular basis it would affect him and he may exhibit drunken behavior even though he is under the legal amount for intoxication. The same is true of the opposite. Let's say Michael picks up a 12 pack of beer every day after work and drinks the entire 12 pack before going to bed. This is again an example of how his body would build up tolerance. His body is more tolerant of the alcohol and even though his BAC will be well over the legal limit, he may not exhibit drunken behavior.

Let's take a look at another important number on the chart. If you look at the chart and notice the numbers in the .23 to .38 range. Once your BAC reaches somewhere in the .30 level, you are in danger of alcohol poisoning. At a BAC of .30, your blood is now 3% alcohol and this puts your body in grave danger. Alcohol poisoning can result in irreversible damage to your heart, brain, and other organs. If discovered in time, doctors can force liquid charcoal into your stomach which helps to absorb the alcohol before any more can enter the bloodstream. In one of the next lessons we will view a video that goes into this process in more detail.

Let's examine the effect of alcohol on Michael as he consumes each additional alcoholic beverage. If we take Michael specifically, remembering that he weighs 200 pounds, the chart shows his BAC level after each drink.



According to the chart under his picture, after one drink his BAC would be .02, after two drinks his BAC would be .04, after three drinks his BAC would equal .06, four drinks .08, and five drinks .09. Now focus your attention on the chart showing BAC levels in red. As we go up the chart you can see the effects that alcohol is having at each BAC level. After one drink his BAC level is .02 and he will begin to feel the effects of the alcohol in his system. His visual function, reaction time, and social graces such as manners, will begin to deteriorate. His attention will be divided and he will have trouble staying focused on for example, a task or a conversation. If he is naturally a shy person, he may become a little bit more outgoing and lose some of his inhibitions. Inhibitions are like that little voice in your head reminding you of right and wrong. When you

start to lose your inhibitions, you tend to act more boldly, and may choose to do things that you would otherwise not do. Losing your inhibitions may cause risky behaviors. In terms of driving, his tracking and steering will become affected and he will have to concentrate a little harder to remain centered in his lane of travel. With each additional drink, you can see as you move up the BAC chart different bodily functions are affected. As you reach the .03 to .04 mark you will begin to have difficulty standing still without stumbling, your eyes may begin to move involuntarily and your responses to emergencies will be affected. Coordination and perception also begin to decline which causes particular problems when you try to drive after consuming alcohol. As we continue up the chart to the .05 to .07 levels you will see again the particular influences on the body especially related to driving a car. Your judgment, your reflexes, and your ability to process information effectively declines. This again is why driving a vehicle under the influence of alcohol is so incredibly dangerous. Finally, when Michael reaches his fourth or fifth alcoholic beverage, he will be at the .08 to .09 BAC level and is considered legally intoxicated. Skills such as speed control, attention to detail, and concentration are greatly affected and driving a car in such a condition can prove to be deadly. Remember even if you have only one drink, don't get behind the wheel of a vehicle.

Meet Joy. She weighs 120 pounds and enjoys having a glass of wine.

## What is Joy's BAC?

	90	100	120	140	160	180	200	220
1	.05	.05	.04	.03	.03	.03	.02	.02
2	.10	.09	.08	.07	.06	.05	.05	.04
3	.15	.14	.11	.10	.09	.08	.07	.06
4	.20	.18	.15	.13	.11	.10	.09	.08
5	.25	.23	.19	.16	.14	.13	.11	.10
6	.30	.27	.23	.19	.17	.15	.14	.12
7	.35	.32	.27	.23	.20	.18	.16	.14
8	.40	.36	.30	.26	.23	.20	.18	.17
9	.45	.41	.34	.29	.26	.23	.20	.19



**What would Joy's BAC be if she weighs 120 pounds and drinks 3 glasses of wine within 2 hours?**

**Remember: If you drink, don't drive.**

What would Joy’s BAC be if she weighs 120 pounds and drinks three glasses of wine within two hours? Three glasses of wine is equal to about 15 ounces. That is less than a small 16 ounce drink at Whataburger.

Let’s look at the chart above. If you go across in the blue section to 120 pounds, and then down the left-hand side showing the number of drinks in two hours, find three drinks, and where these two intersect would show her BAC level of .11 BAC, over the legal limit. An additional thing to note, when examining the BAC level for females, if you notice the number of BAC levels over the .30 level. If you remember on the male chart when we looked at Michael, there were very few BAC levels in the .30 and higher range however when you examine the female chart you will see that the bottom left-hand corner of the chart includes many BAC levels over .30 and even into the .40 and above range. This demonstrates the danger of high alcohol levels in women and creates more danger of alcohol poisoning because females cannot eliminate alcohol from their systems as quickly as men.



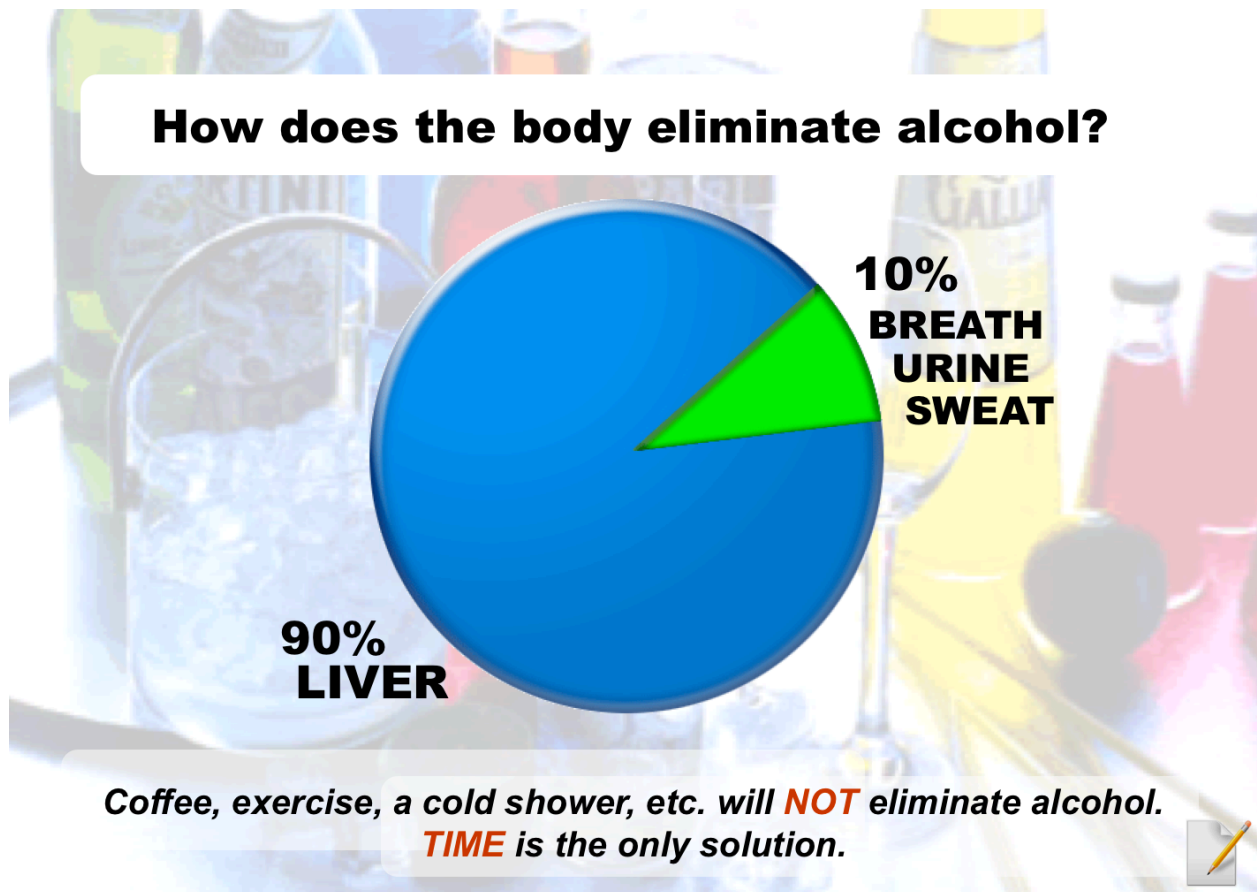
Now let’s examine how a variety of BAC levels will affect a female such as joy weighing 120 pounds. If you look at the chart under her picture, you will see that after one drink her BAC level

is .04, after two drinks her BAC level is .08, and after only three drinks she is well over the legal limit with a BAC level of .11.

In comparison to Michael, his BAC after one drink was only .02. So her BAC is twice as high as Michael's after only one alcoholic beverage. After two drinks Joy is already at the legally intoxicated level of .08. Remember she is drinking wine and a serving of wine is equal to 5 ounces. After two glasses of wine she has had only 10 ounces of alcoholic beverages. This is less than a can of soda. So you can see, you do not have to drink very much and it does not take long to be legally intoxicated.

### ***How does the body eliminate alcohol?***

Once you have consumed alcoholic beverages, your body must work overtime to eliminate the alcohol from your body and reduce the physical effects created when you drink. Only 10% of alcohol is eliminated through your breath, your urine, and your sweat. Most of the heavy lifting is done by your liver. 90% of the alcohol you ingest must filter through the liver to be eliminated from the body.



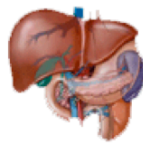
There are many things that people say will help you sober up more quickly but they are simply not true.

You may have heard people say “take a cold shower that will help you sober up“. Taking a shower does not help you sober up. It simply makes you a wet drunk.

You may have heard people say “drink some coffee that will help sober you up“. Drinking coffee does not help you sober up. It simply makes you a wide awake drunk.

The only thing that will help you eliminate alcohol from your system and become sober again is time. It simply takes time for your body to eliminate the alcohol from your blood system.

Let’s look at how the liver does it work. Once the alcohol you drink travels through your stomach it then proceeds into the liver. Through a process called oxidation the liver converts alcohol in the body to water and carbon dioxide. The body can oxidize approximately 3/4 of an alcoholic serving in one hour. So if I have one alcoholic beverage, it will take over an hour to eliminate that one drink from my system. If you take a look at the chart below, you can see how long it takes at a variety of BAC levels.



## How does the liver work?

**OXIDATION =** *The liver converts alcohol in the body to water and carbon dioxide.*

***3/4*** of an alcoholic serving is oxidized per hour.

<b>BAC of 0.05</b>	<b>→</b>	<b>3.5 hours</b>
<b>BAC of 0.07</b>	<b>→</b>	<b>5 hours</b>
<b>BAC of 0.10</b>	<b>→</b>	<b>7 hours</b>
<b>BAC of 0.15</b>	<b>→</b>	<b>10 hours</b>

*Based on an adult male approximately 160 pounds with normal liver function.*

These numbers are based on an adult male who weighs approximately 160 pounds and has a normal healthy liver. At a BAC of .05 it would take approximately 3.5 hours to eliminate all of the alcohol from the system. At a BAC of just .07 it would take five hours. At a BAC of .10, which is again over the legal limit, it would take seven hours to be fully sober. Finally at a BAC of .15 your body would need upwards of 10 hours to eliminate all the alcohol from your system. We cannot say it enough. The only thing that will help you become sober is time.

Let's have a look at some real life scenarios that play out every time someone decides to drink alcohol. When you turn 21 you may be faced with some of the same decisions. Think about each scenario and decide what you think should happen.

A man with a beard and short brown hair, wearing a dark suit, white shirt, and dark tie, is looking slightly to the right with a thoughtful expression. The background is a blurred office or modern building interior with large windows and structural beams.

**Jake goes to a party at 9:00pm with some friends from work.**

**He decides to stop drinking about 1:00 am because he knows he will have to drive home soon.**

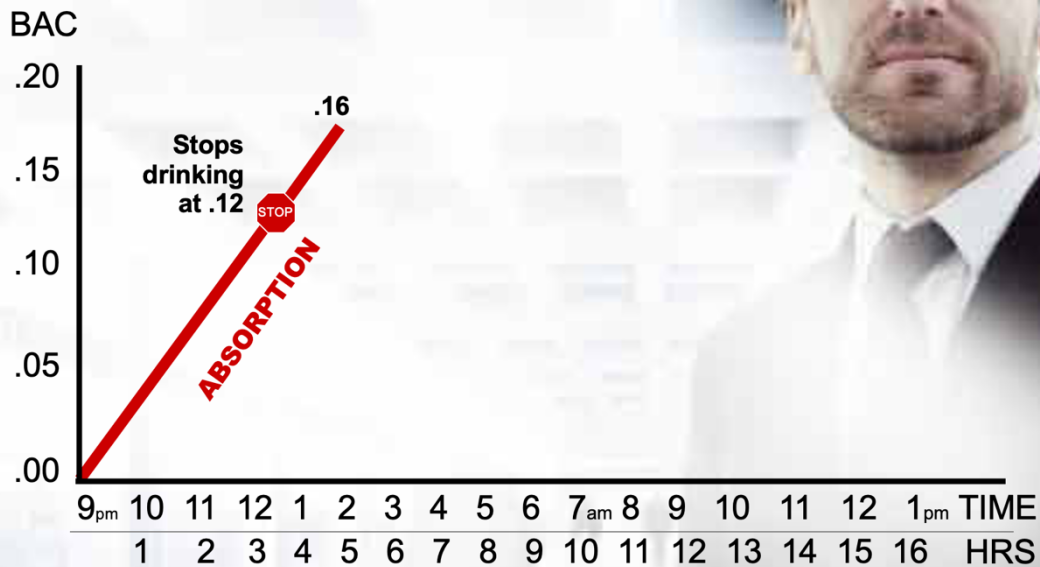
**At 2am he feels he is sober enough to drive.**

**Should he drive home?**

Jake goes to a party at 9 PM with some friends from work. He has a good time and drink some alcohol throughout the evening. At 1 AM he decides to stop drinking because he knows he will have to drive home soon. The bar closes at 2 AM so he figures that one hour will give him enough time to sober up and drive home. At 2 AM he decides he feels sober enough to drive. *The question is, should he drive home?*

Hopefully your answer was no, he should not drive home. Let's look at a graph that will hopefully give us a better understanding.

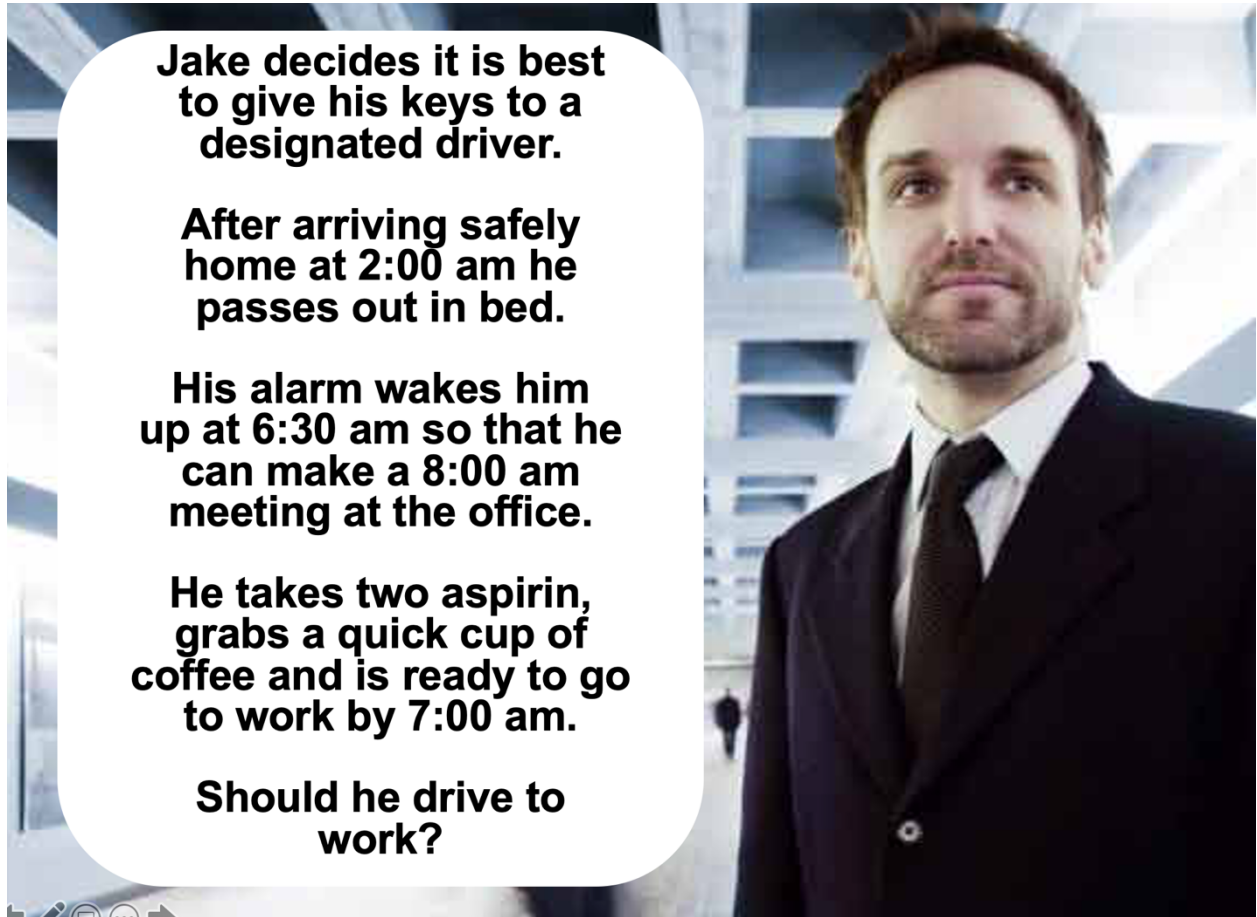
## Should Jake drive home?



*Based on an adult male approximately 175 pounds with normal liver function.*

This chart shows time at the bottom of the chart where you can see the time of night from 9 PM all the way to 1 o'clock the next afternoon and also the number of hours that pass. So from 9 PM to 1 AM Jake has spent four hours drinking while out with friends. On the left side of the chart you see his blood alcohol content and how it increases. The redline shows the rate at which his blood alcohol content increases over time. You can see at 1 AM he decides to stop drinking but his BAC is already at .12. His decision to stop drinking seems like a reasonable and smart choice since he is already over the limit. He assumes that because he stopped drinking, that he would start getting sober right away. However, by 2 AM you can see that his BAC has continued to increase to .16. This is due to a process called absorption where alcohol continues to be absorbed into the bloodstream even after you stop drinking. So instead of going down after he stops drinking, Jake's BAC actually continues to increase making it even unsafe for him to drive.





**Jake decides it is best to give his keys to a designated driver.**

**After arriving safely home at 2:00 am he passes out in bed.**

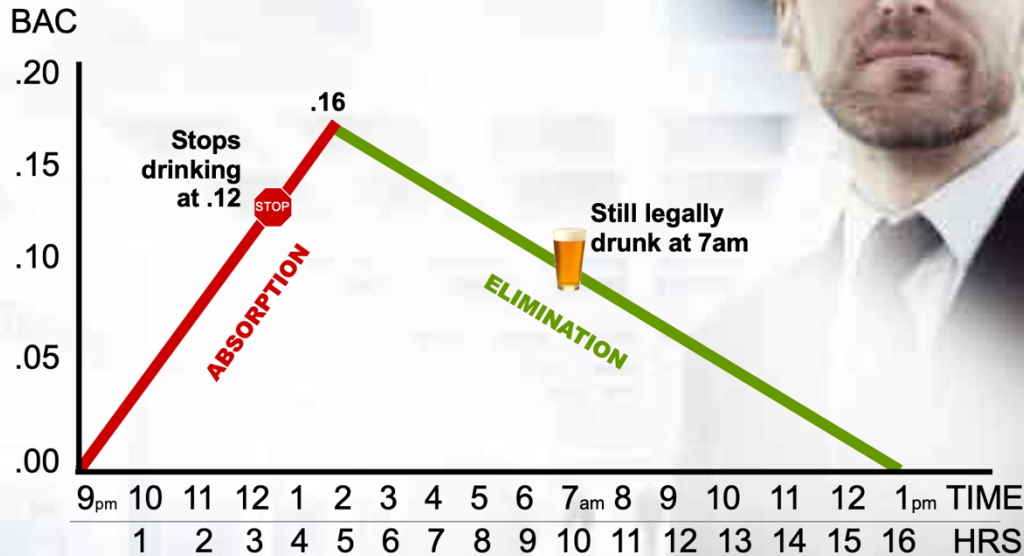
**His alarm wakes him up at 6:30 am so that he can make a 8:00 am meeting at the office.**

**He takes two aspirin, grabs a quick cup of coffee and is ready to go to work by 7:00 am.**

**Should he drive to work?**

After careful consideration, Jake decided it is best that he not drive and gives his keys to a designated driver who gives him a ride home instead. After arriving home safely at around 2 AM he passes out in bed. His alarm wakes him up at 6:30 AM so that he can be to work by 8 AM for a meeting. He takes two aspirin, grabs a quick cup of coffee and is ready to go by 7 AM. *The question is should he drive to work?*

## Should he drive to work?



Based on an adult male approximately 175 pounds with normal liver function.

Let's look once again at the chart detailing Jake's BAC. The green line starts at 2 AM about the time he went to bed. His blood alcohol content does begin to decline however, if you follow the green line to 7 AM and then go across to the BAC level you will see that his BAC is still at .10 even though he's been asleep for a few hours. Remember, .08 is the legal level of intoxication so Jake is still legally drunk at 7 AM in the morning. If Jake gets in his car and drives to work, he could still be arrested for drunk driving because he is over the legal limit. Remember, the only thing that will eliminate alcohol from your system and lower your BAC is *time*. If you follow the green line all the way down to a BAC of zero, you will see that it will take until almost 1 PM in the afternoon in order for all of the alcohol to be eliminated from his system. This is nearly a full 12 hours since he had his last alcoholic beverage.

ALL BLANKS FOR HOUR 1 & 2 OF THE WORKSHEET MUST BE FILLED IN TO  
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