

### 3.4 Oxygen and Oropharyngeal Airways

#### Why oxygen therapy?

For any patient experiencing shock, providing as high a concentration of oxygen as possible will best help to prevent \_\_\_\_\_. A patient gets a maximum of 21% oxygen from inspired air, but oxygen therapy can increase this percentage greatly. This is why oxygen delivery is \_\_\_\_\_ in a first aid setting.

What patients will NOT benefit from oxygen therapy?



**Safety**

Oxygen is stored in highly \_\_\_\_\_ cylinders. If the tank or the medical post is damaged, the tank can become a missile strong enough to go through a \_\_\_\_\_. Therefore, oxygen tanks should be handled with care:

- Never leave a cylinder \_\_\_\_\_
- Never \_\_\_\_\_ or \_\_\_\_\_ an oxygen unit
- Always keep an oxygen cylinder \_\_\_\_\_ within a bag

Oxygen also supports combustion. Therefore,

- Never use oxygen near a \_\_\_\_\_
- Never \_\_\_\_\_ near an oxygen unit
- Never leave an oxygen unit in a \_\_\_\_\_ place
- Never use \_\_\_\_\_ products (grease, vaseline, etc.) around or on an oxygen unit. (Under pressure, this can be explosive)

In a moist environment, corrosion of oxygen equipment is also a concern. Therefore,

- Always \_\_\_\_\_ oxygen equipment on a regular basis

**OXYGEN \_\_\_\_\_  
FOR A PATIENT!! IT SIMPLY SUPPLEMENTS  
THE AIR YOU BREATH FOR THEM!!**

**Summary of things to avoid:**

- F –**
- O –**
- R –**
- T –**

## **Cylinder Hazard - A True Story**

The anchoring of compressed gas cylinder, to keep them from being knocked over with the accompanying possibility of breaking off the valve, is an accepted safe practice. However, there has been some question regarding what would actually happen if a cylinder valve were knocked off.

While it wasn't requested, we now have first-hand knowledge as to what happened in one case, thanks to a compressed gas cylinder (CO<sub>2</sub>) that caused a few moments of frenzied activity in a building under construction..

Six 220-cubic-foot cylinders, part of a fire extinguishing system, had been moved away from their wall supports to allow painters to complete the painting of the area. While moving them back into position, it was noticed that one cylinder was leaking. The painter had the cylinder leaning against his shoulder, and was attempting to scoot it across the floor. At this time, the valve separated from the cylinder and was projected backward, hitting the side of a stainless steel cabinet.

The man suddenly found himself with a jet-propelled, 215-pound piece of steel. He wrestled it to the floor, but was unable to hold it. The cylinder scooted across the floor, hitting another cylinder, knocking it over, and bending its valve. The cylinder then turned 90 degrees to the right and traveled 20 feet, where it struck a painter's scaffold, causing a painter to fall 7 feet to the floor. (The painter received multiple fractures of the leg.) After spinning around several times, it traveled back to its approximate starting point, where it struck a wall.

At this point, the cylinder turned 90 degrees to the left, and took off lengthwise in the room, chasing an electrician in front of it. It crashed-into the end wall 40 feet away, breaking loose four concrete blocks, then turned again 90 degrees to the right, and scooted through a door opening, still chasing the electrician. The electrician ducked into the next door opening, but the cylinder continued its travel in a straight line for another 60 feet, where it fell into a truck well door. The balance of the cylinder pressure was released as the cylinder spun harmlessly around in the truck- well area.

It is surprised that the cylinder valve had not obtained previous damage and it was a matter of chance that it separated from the cylinder at this particular time

This incident illustrates what can happen when a valve is separated from a compressed gas cylinder. This particular cylinder contained pressure of approximately 900 pounds per square inch, but many cylinders are pressurized to 2200 pounds per square inch. If you have any doubts about the need of anchoring compressed gas cylinders, you might think about the 2,200 pounds per square inch, and ask yourself, "What if...

**Information**

Oxygen cylinders always come in one of the following colours:

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

In first aid, we generally use a \_\_\_\_ size cylinder that holds \_\_\_\_\_ psi. When the pressure reaches \_\_\_\_\_ psi it should probably be changed.



**How Long (in minutes) will O<sub>2</sub> last in a tank?**

10 Lpm Flow: full tank is approx. \_\_\_\_\_

15 Lpm Flow: full tank is approx. \_\_\_\_\_

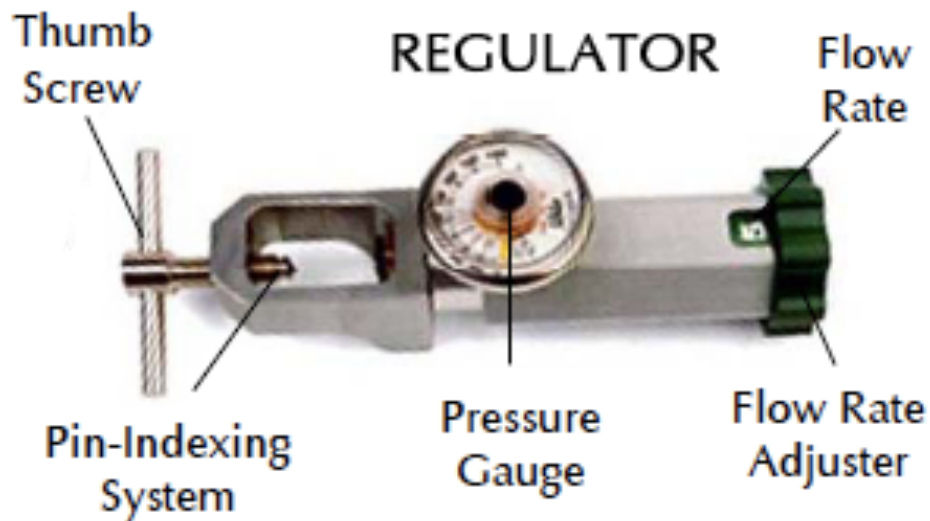
There are many different types of regulators, but all have some things in common.

There are two gauges:

- 1) \_\_\_\_\_ Gauge – measures the amount of oxygen left in the tank (0-2200 psi) in pounds per square inch
- 2) \_\_\_\_\_ Gauge – measures how fast the oxygen is coming out (0-25 lpm) in litres per minute

The \_\_\_\_\_ holds the regulator onto the oxygen tank, and is used to change the tank (not to adjust the flow!!!!)

The \_\_\_\_\_ is used to turn the tank on and off, and the flow adjuster turns it up and down.



WRENCH



## Oxygen Delivery Devices

Name	Purpose	Flow	O2



In a First Aid setting, we are normally using a...

1) Simple Face Mask at \_\_\_\_ Lpm for all \_\_\_\_\_ patients

2) Pocket Mask at \_\_\_\_ Lpm is used for all \_\_\_\_\_  
or ASSISTED VENTS patients

*Oxygen flow has nothing to do with level of consciousness.*

### **How to Use Oxygen Tank:**

1. Attach the appropriate delivery device –  
*plug in the mask that you are planning to use*
2. Open the cylinder –  
*Twist medical post one quarter turn counter-clockwise with key*
3. Check the amount of oxygen left –  
*2000 psi will last 40 minutes at 10 lpm and 20 minutes at 15 lpm*
4. Turn it up to the appropriate flow rate –  
*depending on the type of delivery device*
5. Let the lines clear, then use the oxygen –  
*If the tank has not been used for awhile, there may be dust and stale air in the hose.*
6. When done, turn the flow off –  
*Turn flow gauge down to 0*
7. Check the amount of oxygen left –  
*Check to see weather the cylinder needs changing (less than ~500psi).*
8. Close the cylinder –  
*Twist medical post clockwise with key until tight*
9. Bleed out extra oxygen –  
*Leaving pressure in the regulator may damage it over time*
10. Change the cylinder if necessary –  
*Ensure that the cylinder is changed if necessary in case of another emergency.*

### **What do you do if you hear the tank hissing (ie. leaking)?**

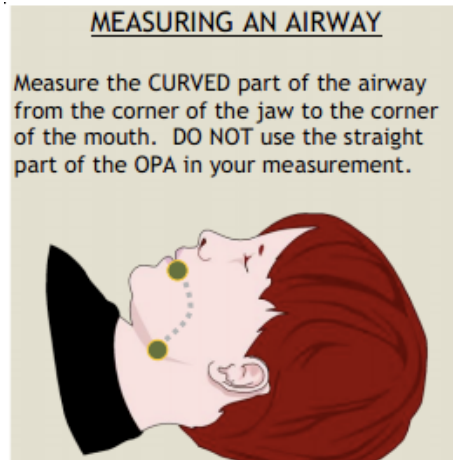
MINOR LEAK

MAJOR LEAK

## B. Oropharyngeal Airways

Oropharyngeal airways are a tool to help maintain an open airway in an \_\_\_\_\_ patient. They can be especially useful for an unconscious suspected spinal patient where caution is being taken with neck movement.

Any patient that is \_\_\_\_\_ and does not have an \_\_\_\_\_ can receive an oropharyngeal airway.



Steps to insert an oropharyngeal airway:

- 1) Choose the \_\_\_\_\_
- 2) Insert toward \_\_\_\_\_ of mouth
- 3) \_\_\_\_\_ as it enters mouth
- 4) Check \_\_\_\_\_



### 3.3 Oxygen and Airways

For any patient experiencing shock, providing as high a concentration of oxygen as possible will best help to prevent cells from dying. A patient gets a maximum of 21% oxygen from inspired air, but oxygen therapy can increase this percentage greatly. This is why oxygen delivery is necessary in a first aid setting.

#### The oxygen Bar

<http://www.youtube.com/watch?v=bg23KdQKl2Y>

or

<http://www.youtube.com/watch?v=zXPai1PELhQ>

#### cement wall

<http://www.youtube.com/watch?v=eJGJNLTo84&feature=related>

#### smoking

<http://www.youtube.com/watch?v=D7QpSfvyOek>

#### What patients will NOT benefit from oxygen therapy?

- A person who refuses it

### **Safety**

Oxygen is stored in highly pressurized cylinders. If the tank or the medical post is damaged, the tank can become a missile strong enough to penetrate a cement wall.

Therefore, oxygen tanks should be handled with care:

- Never leave a cylinder standing up
- Never throw or drop an oxygen unit
- Always keep an oxygen cylinder secured within a bag

Oxygen also supports combustion. Therefore,

- Never use oxygen near a fire
- Never smoke near an oxygen unit
- Never leave an oxygen unit in a hot place
- Never use petroleum products (grease, vaseline, etc.) around or on an oxygen unit. (Under pressure, this can be explosive)

In a moist environment, corrosion of oxygen equipment is also a concern. Therefore,

- Always inspect oxygen equipment on a regular basis

**OXYGEN DOES NOT BREATHE FOR A PATIENT!! IT SIMPLY SUPPLEMENTS THE AIR YOU BREATHE FOR THEM!!**

### **Summary of things to avoid:**

- F – Fire/Flame
- O – Oil/Grease
- R – Rough Handling
- T – Tunnel Vision

## **Cylinder Hazard - A True Story**

The anchoring of compressed gas cylinder, to keep them from being knocked over with the accompanying possibility of breaking off the valve, is an accepted safe practice. However, there has been some question regarding what would actually happen if a cylinder valve were knocked off.

While it wasn't requested, we now have first-hand knowledge as to what happened in one case, thanks to a compressed gas cylinder (CO<sub>2</sub>) that caused a few moments of frenzied activity in a building under construction..

Six 220-cubic-foot cylinders, part of a fire extinguishing system, had been moved away from their wall supports to allow painters to complete the painting of the area. While moving them back into position, it was noticed that one cylinder was leaking. The painter had the cylinder leaning against his shoulder, and was attempting to scoot it across the floor. At this time, the valve separated from the cylinder and was projected backward, hitting the side of a stainless steel cabinet.

The man suddenly found himself with a jet-propelled, 215-pound piece of steel. He wrestled it to the floor, but was unable to hold it. The cylinder scooted across the floor, hitting another cylinder, knocking it over, and bending its valve. The cylinder then turned 90 degrees to the right and traveled 20 feet, where it struck a painter's scaffold, causing a painter to fall 7 feet to the floor. (The painter received multiple fractures of the leg.) After spinning around several times, it traveled back to its approximate starting point, where it struck a wall.

At this point, the cylinder turned 90 degrees to the left, and took off lengthwise in the room, chasing an electrician in front of it. It crashed-into the end wall 40 feet away, breaking loose four concrete blocks, then turned again 90 degrees to the right, and scooted through a door opening, still chasing the electrician. The electrician ducked into the next door opening, but the cylinder continued its travel in a straight line for another 60 feet, where it fell into a truck well door. The balance of the cylinder pressure was released as the cylinder spun harmlessly around in the truck- well area.

It is surprised that the cylinder valve had not obtained previous damage and it was a matter of chance that it separated from the cylinder at this particular time

This incident illustrates what can happen when a valve is separated from a compressed gas cylinder. This particular cylinder contained pressure of approximately 900 pounds per square inch, but many cylinders are pressurized to 2200 pounds per square inch. If you have any doubts about the need of anchoring compressed gas cylinders, you might think about the 2,200 pounds per square inch, and ask yourself, "What if..."

**Information**

Oxygen cylinders always come in one of the following colours: silver, white, or green

In first aid, we generally use a "D" size cylinder that holds 2000-2200 psi. When the pressure reaches 500 psi it should probably be changed.



**How Long (in minutes) will O<sub>2</sub> last in a tank?**

10 Lpm Flow: full tank is approx. 40 minutes

15 Lpm Flow: full tank is approx. 20 minutes

There are many different types of regulators, but all have some things in common.

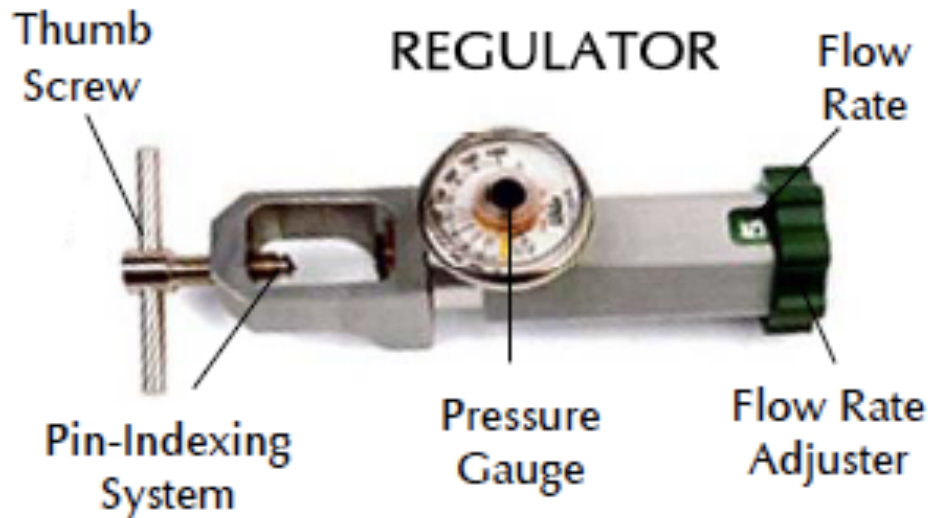
There are two gauges:

1) Pressure Gauge – measure the amount of oxygen left in the tank (0-2200 psi) in pounds per square inch

2) Flow Gauge – measures how fast the oxygen is coming out (0-25 lpm) in litres per minute

The thumb screw holds the regulator onto the oxygen tank, and is used to change the tank (not to adjust the flow!!!!)

The wrench is used to turn the tank on and off, and the flow adjuster turns it up and down.



### WRENCH



## Oxygen Delivery Devices

Name	Purpose	Flow Rate	Potential O <sub>2</sub>
1. Simple Face Mask	Breathing Patient	10	45%
2. Pocket Mask	Non-Breathing Patient	15	60%
3. Nasal Cannula	Long-term Patient	3-5	35%
4. Bag Valve Mask	Non-Breathing Highly Trained	25	100%
5. Ventilator	In Hospital Non-Breathing		



In a First Aid setting, we are normally using a...

- 1) Simple Face Mask at 10 Lpm for all BREATHING patients
- 2) Pocket Mask at 15 Lpm is used for all NON-BREATHING or ASSISTED VENTS patients

*Oxygen flow has nothing to do with level of consciousness.*

### **How to Use Oxygen Tank:**

1. Attach the appropriate delivery device –  
*plug in the mask that you are planning to use*
2. Open the cylinder –  
*Twist medical post one quarter turn counter-clockwise with key*
3. Check the amount of oxygen left –  
*2000 psi will last 40 minutes at 10 lpm and 20 minutes at 15 lpm*
4. Turn it up to the appropriate flow rate –  
*depending on the type of delivery device*
5. Let the lines clear, then use the oxygen –  
*If the tank has not been used for awhile, there may be dust and stale air in the hose.*
6. When done, turn the flow off –  
*Turn flow gauge down to 0*
7. Check the amount of oxygen left –  
*Check to see weather the cylinder needs changing (less than ~500psi).*
8. Close the cylinder –  
*Twist medical post clockwise with key until tight*
9. Bleed out extra oxygen –  
*Leaving pressure in the regulator may damage it over time*
10. Change the cylinder if necessary –  
*Ensure that the cylinder is changed if necessary in case of another emergency.*

### **What do you do if you hear the tank hissing (ie. leaking)?**

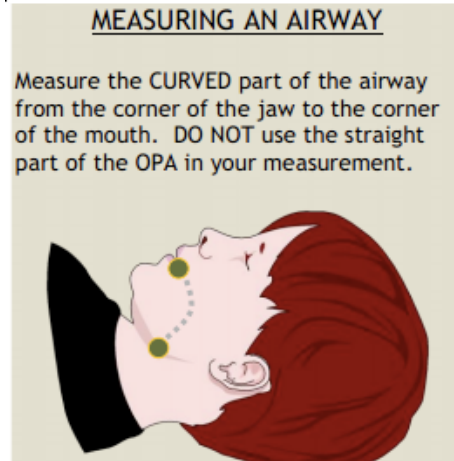
MINOR LEAK – try to tighten – use anyways

MAJOR LEAK – try to tighten – get new cylinder

## B. Oropharyngeal Airways

Oropharyngeal airways are a tool to help maintain an open airway in an unconscious patient. They can be especially useful for an unconscious suspected spinal patient where caution is being taken with neck movement.

Any patient that is unresponsive to voice and does not have an airway obstruction can receive an oropharyngeal airway.



Steps to insert an oropharyngeal airway:

- 1) Choose the right size
- 2) Insert toward roof of mouth
- 3) Twist as it enters mouth
- 4) Check breathing

