



## Overdosed But Not Overlooked

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Opioid overdoses have been on the rise in the state of Massachusetts over the past 10 years, and unfortunately, many of those overdoses have been fatal.<sup>1</sup> In March 2014, the Commonwealth declared a Public Health Emergency, and a task force was formed in order to address this matter. The Department of Public Health (DPH) put forth a series of actions to prevent opioid overdoses, to help people with opioid addictions recover, and to construct a plan to end opioid abuse in the Commonwealth. There are four key areas that need to be addressed in combating this opioid epidemic, including prevention, intervention, treatment, and recovery support.<sup>2</sup>

Naloxone is an opioid antagonist which displaces the opioid from the opioid receptors in the brain. Opioids include heroin, morphine, oxycodone, methadone, hydrocodone, codeine, and other prescription pain medications. Naloxone has been proven to be both safe and effective and has no potential for abuse. Naloxone can take up to 8 minutes to start working, and it lasts for 30-90 minutes. The down side to using naloxone is that most opioids last longer than 30 to 90 minutes in the body, therefore the naloxone may wear off quicker than the opioids and the person may return to an overdosed state. Naloxone kits contain two doses and naloxone can be administered a second time if necessary without harming the patient while emergency medical services are in route.<sup>3</sup>

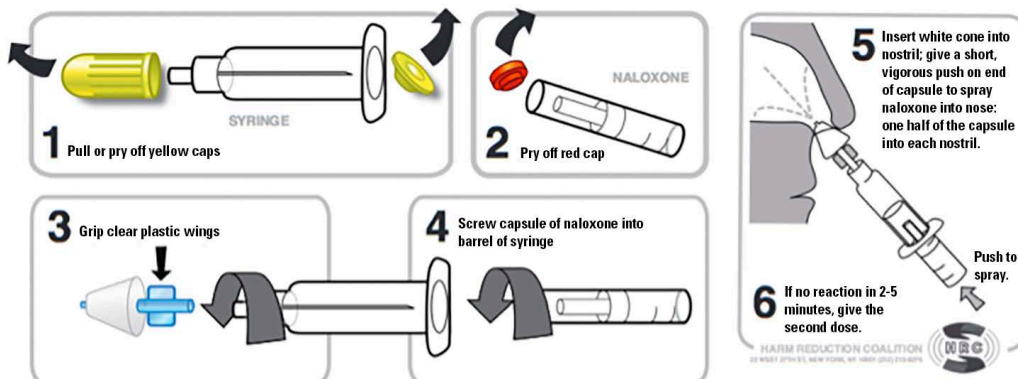
For the intervention aspect, all first responders now carry Narcan® (naloxone). This drug is a safe and effective opioid reversal tool. The Department of Health is providing direct funding to purchase naloxone for a total of 23 communities in Massachusetts with the highest fatal opioid overdoses over a five year period. Naloxone is also available to family members or close friends of someone who might overdose, without a prescription as a "standing order" in select pharmacies.<sup>2</sup> Patients, friends, or family members may simply walk into a pharmacy and request Narcan® which is then billed to their insurance plan or processed as a cash prescription. Training is given at the pharmacy on how to administer the drug. A healthcare practitioner may also prescribe Narcan® for a patient when writing for opioid medications.

Prescribers can write a standing order with a participating pharmacy or write a prescription for a patient that can be brought to any pharmacy. The standing order must be filed with the Board of Registration in Pharmacy via email: naloxonestandingorders@massmail.state.ma.us. The standing order authorizes registered pharmacists at participating pharmacies to maintain adequate supplies and dispense naloxone rescue kits to people at risk of opiate-related overdose, or to people who are family members, friends, or other persons in a position to help people at risk of experiencing an opiate overdose. A copy of the standing order must be maintained on file and readily retrievable at each pharmacy site. It is recommended that the standing order is renewed annually. An example of a standing order can be found at <http://www.mass.gov/eohhs/docs/dph/quality/boards/pharmacy/example-naloxone-standing-order-4-18-14.pdf>.<sup>4</sup>

### References:

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2. A Comprehensive Strategy to End Opioid Abuse in Massachusetts. MA; 2015 [cited 2015 Dec 1]. Available from: <http://www.mass.gov/eohhs/feature-story/end-opioid-abuse-in-mass.html>
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4. Administer Naloxone [Harm Reduction Coalition]. [cited 2015 Dec 1]. Available from: <http://harmreduction.org/issues/overdose-prevention/overview/overdose-basics/responding-to-opioid-overdose/administer-naloxone/>

## HOW TO GIVE NASAL SPRAY NARCAN





## Let's Concentrate on Insulin

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Insulin was introduced to the medical world as U-100, however, in recent months concentration adjustments have rapidly made their way into the market. New insulin concentrations are now available in rapid-acting, short-acting, and long-acting formulations. This increase in concentration has been developed in order to decrease the volume needed for each injection. Patients who are on large insulin doses, due to their insulin resistance, and frequently injecting would benefit from this concentration change.<sup>1</sup>

Concentration changes are not entirely new to the world of medicine, they began with Humulin R U-500, which made its entry to the market in 1997.<sup>1</sup> It is regular, short-acting insulin that is 5 times as concentrated as the U-100 insulin. It has been particularly helpful in patients who exceed 200 units of insulin per day, those with high insulin resistance, and others on high-dose steroids, as steroids increase insulin resistance.<sup>1</sup> Unlike numerous other insulins, U-500 is not delivered in a prefilled pen; it is only available in a vial and may be drawn up by either a U-100 syringe or a Tuberculin syringe. Since it is not available in a prefilled pen that can account for volume per unit, it does require a dose conversion. This adjustment depends on the particular syringe used to draw up the insulin. A conversion chart is available for use in the U-500 package insert.<sup>2</sup> U-500 is not to be mixed with any other insulins and must be monitored closely, due to the increased risk of hypoglycemia.<sup>2</sup> It is administered two to three times a day, approximately 30 minutes before a meal.<sup>2</sup>

A newer insulin released to the market in April 2015, is Toujeo® (insulin glargine), a U-300, long-acting insulin. It is 3 times as concentrated as its U-100 counterpart, Lantus® (insulin glargine). Toujeo® is available as a 1.5 mL SoloStar® prefilled pen, and has a green exterior to distinguish itself from other SoloStar® pen formulations which are grey.<sup>1</sup> It has an onset of six hours post-dose, and should not be mixed with any other insulins or solutions.<sup>3</sup> An important point to make is that there is no dose conversion necessary when initiating U-300, if previously on U-100 insulin glargine.<sup>3</sup> The prefilled pen accounts for the appropriate volume for the number of units needed per injection. For example, if you are on 10 units of U-100, you would still set the pen to 10 units with the U-300 pen, but it would adjust the volume to 1/3 as much as with the U-100.

A third available insulin is the Humalog® (insulin lispro) U-200 KwikPen®. It was released in the United States in August 2015, and is a rapid-acting insulin. It is twice as concentrated as the U-100 insulin lispro pens, and is available in a 3 mL prefilled KwikPen®. The pen is black rather than blue, like the U-100 prefilled pen.<sup>1</sup> Humalog® cannot be mixed with any other insulins.<sup>4</sup> Similar to Toujeo®, there is no dose conversion necessary, since the prefilled pen will account for half of the volume to be administered for the same amount of insulin.<sup>1</sup>

Tresiba® (insulin degludec) is a long-acting U-200 insulin, approved in the United States in 2015. It is twice as concentrated as its U-100 counterpart. Tresiba® should not be mixed with any other insulins.<sup>5</sup> It is available in a 3 mL prefilled FlexPen®, in an olive green color. Similar to the other available prefilled pens there is no need for a dose conversion upon initiation if on U-100 previously; it is a 1:1 conversion.<sup>5</sup> When the number of units necessary is input in the pen, it will account for the appropriate volume for injection.

These newly released increased concentration insulin pens may have a profound effect on those patients who have increasing insulin resistance. In particular, Tresiba® and Humalog® U-200 each have pens with the same volume, but twice the units of insulin available. This will allow for the pens to be used for a longer period of time, as long as it does not extend past their expiration dates.

Watching for hypoglycemia is the most important factor when initiating these increased concentrations. These pens would be beneficial to those patients injecting more than 200 units of insulin daily, frequently injecting, or those on long-term medication therapy that may cause increased insulin resistance. Consider all factors of these newly formulated insulins and determine if they could be right for those individuals most at need.

Name	Concentration	Delivery System
Humalog® (insulin lispro)	200 units/mL	3 mL KwikPen® prefilled pens
Tresiba® (insulin degludec)	200 units/mL	3 mL FlexTouch® prefilled pens
Toujeo® (insulin glargine)	300 units/mL	1.5 mL SoloStar® prefilled pens
Humulin® R (insulin regular)	500 units/mL	vials

#### References:

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