

Banner Health | Samantha Chapman

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Yeah, same question. So when this originally rolled out, how many doses were we expecting to get out of the Pfizer vials? We were expecting to get five doses out of each vial, knowing that there'd be some left over, and we don't want to use the term "overflow" necessarily, because it's based on concentration. So Pfizer knew that they put 0.45 milliliters into that vial, and then when we dilute it with 1.8 milliliters, that brings it to the right concentration. Now, depending on what type of syringe and needle you utilize, you're able to extract five, six, or sometimes even seven doses, and it's not due to an error in dilution. It's all the same concentration. It's just based on dead space.

Explain that a little bit for people who don't understand dead space.

Yeah, absolutely, and I have some products to demonstrate with. So what I have taken fresh out of a package, a low dead space syringe, has this little nub on the end. And what that nub does is it ensures that almost no dead space exists, and what that means is that the nub goes basically flush to the end of this little lock. In another syringe type, you would see that the nub does not exist. A standard syringe does not have a nub that would push every little drop out of that area, to us, meaning dead space.

And to highlight the biggest difference, I brought some product. And this is just water. So removing all the air. You would think if I withdrew 0.3 mLs on each one, that it would deliver [AUDIO OUT], and it's going to be based on the design of the syringe. But what is also taken into account is that on a regular syringe, they know how much dead space is there, so the graduation marks are actually different and take that into account. Why it's a problem for us-- or not a problem. Why it's an obstacle to overcome is that at the end of the day, if we have regular syringes, that's how much extra vaccine is drawn up to get to that 0.3, versus this tiny little drop that's left on the low dead space. And what that means is that increased volume in the vials isn't usable, because it's being used to account for that dead space.

In a low dead space syringe, we can use that extra liquid, because we don't need as much to get the right dosage. And this is all based on the manufacturer of the syringe, so it's not like it's individuals making that assumption or speculating. It's all based on just drawing up the appropriate dose for the appropriate syringe. And this is what's left over.

Why is it critical to have these no dead space syringes?

It's super critical to have no dead space syringe and needle combinations, because we're really trying to get more doses into people's arms. And if we are having to give up a sixth or a seventh dose each and every vial, it's really painful. That's one or two people who now cannot be vaccinated simply because of the supplies we're being given.

We're already stretched thin on supply. Supply is limited. How important was it to get a 20% boost when we got these dead space syringes in?

It was extremely important. The more people we can vaccinate and the more efficiently and quicker, the better everyone's going to be at the end of this.

The question is, will those needles continue to come, right? The supply is the biggest question.

Right.

It's not of the vaccine now. Now it's of needles, right?

Yes, absolutely, and so far, we have not received any indication that we're not going to keep getting supplies. So we're taking it one day at a time as the rest of the world is doing. However, we're also trying to be smart about what we choose to use for each vial. And so what that means is we are now using three standard syringes and three low dead space syringes per vial, and that's giving us the six. What it's doing, though, is it's eliminating any possibility of a seventh dose, so each vial that goes out is another missed opportunity.

Explain that one more time for me.

Yep.

Sorry.

Yep. Nope, that's all right. So what we're doing is instead of using all of our low dead space syringes consistently for each one and getting six, sometimes seven, we're using some of our low dead space syringes, some of our standard syringes, and really working with the numbers to make sure that we always get six doses. It just eliminates the entire possibility of getting that seventh dose, which is there.

But it guarantees you get six doses out of every vial?

Accounting for different individuals have different abilities to suck a vial dry, and what that means is in order to get that sixth dose, you have to be very savvy. Someone who works with vials and vaccines a lot understands the technique to get each and every drop out, which is what we teach and is what we do. There is always some anomalies that require us to sometimes only get five.

Are these special syringes more difficult to use?

They are so much easier to use, so it's quite the contrary. So a standard syringe and needle come separate. You have to assemble these. And every time you're assembling a needle and syringe, you're introducing the potential for bacteria, because it's another critical site. Those are what those are called. On a needle and syringe combination where it's fixed, that's no longer a critical site, because it's completely sealed off. So using a needle and syringe combination that is fixed and that is low dead space is the cream of the crop. It's the easiest to use. It's the most efficient to use, and it allows us to get that sixth dose-- seven, depending on the individual.

However, these dead space syringes generally aren't used with vaccines, right? But they are used with more expensive medications.

Yes, that is true. However, it's just based on what we used to do. Pre-pandemic, it wasn't necessary, because everything wasn't as critical to get every last drop, so that is why there is a potential shortage of the low dead space syringes.

I've heard that there are some cancer medications that use these low dead space syringes, specifically because of that exact reason, that these medications are expensive and they need to get every single drop out of them for their patients. Is that true, those get used for cancer medications like that for that exact reason?

Off of the top of my head, I can't recall every single medication that uses them. I do know that they are used to get the most accurate dosing with the least amount of left over or left behind products.

Why is limiting waste-- especially because, obviously, people don't want any vaccine wasted, but waste happens with vaccines. Can you talk a little bit about that, too?

Yeah, so waste would happen if we're in the process of making the doses, or compounding, or reconstituting, or diluting, whatever verbiage you prefer. If we notice that the vial has particulates in it or it looks off, it just doesn't look right, we have to waste it. We have to call Pfizer up. We have to report that we had an anomaly. They walk us through, what does it look like? What happened? Was there anything that you can think of? And then they actually take the vial back. And that has happened, and they're going to replace that vial. It was a vial, it looked completely different than the rest of them. So that could be considered waste. It's a vial that we can't use right now.

Talk about drawing up and broken needles, because I want to give people context of how waste happens.

Yep. Yep. So if we are drawing up and something happens to the needle, say it drops on the floor or becomes otherwise compromised for a sterility factor, that's going to put patients at risk of infection, and that's not what we want to do. So if there were to be an event that would cause the needle to touch a non-sterile surface, we have to waste that, just for the patient safety, and that's really what the goal is here.

You could even have a needle break after you've already pulled up the vaccine, right?

In theory, you could. We haven't experienced that yet, so knock on wood. We're not giving ourselves any bad omens here. But the other things that could happen is that during administration, the retractable needles are fantastic. But if for some reason some of them retract quicker than others and the administrator isn't necessarily prepared for it, it could retract before the full dose is given. And that would be a waste, because depending on the factors of what occurred, that patient may or may not need to be redosed.

I think people just want to know that we are getting as much as we can out of that. How committed is this location to making sure that we get every single thing out of these doses that we can?

Oh, wholeheartedly, fully committed. We have a huge Banner Strong team here that is working very diligently to ensure that we have the optimal individuals in each step of the process so that we can squeeze every single drop out of this.