

## Reconstitution Powdered IV Medication Administration

Female1: Hi, Renee,

Female2: Hi, Wendy.

F1: So what are we doing today?

F2: So let's show students how to reconstitute a powdered IV medication. So you've checked your MAR, you know what drug you're giving, what dose, what time to what patient, all those rights. You've gone to your medication dispensing system. You've taken it out per all those protocols. And you've collected your equipment. So you can do this a couple of different ways. We'll talk about the easiest way first. So you need your IV mini bag. And you decide on that volume by going and looking at the drug monograph or in your parenteral practices manual and it's pretty clear. It gives us directions. It might give you a range of volume that you can mix it with in which case-- so let's say I could mix this particular drug with 50 to 100 mls of normal saline. I would choose the volume based on patient factors. So where's their IV? What's the IV site like? What's the size of the vessel that the IV's going into? If it's highly irritating and they have a peripheral site, I'm probably going to choose a larger volume so that we don't get phlebitis. If it's a PICC line or a percutaneous subclavian line that's going into the vena cava where osmolality doesn't matter as much, you might have smaller volumes. Because that whole phlebitis irritation thing isn't a big concern.

F1: And they might have things like they're in congestive heart failure or something like that.

F2: Yeah, and those are the other factors. So what are your other patient comorbidities, if there's heart failure, renal failure, any kind of cardiac issues, you might resort to the smaller volumes. So there's a lot of thinking that goes into that. If you have a choice of solutions you might say, oh, well, my patient's diabetic, I better not put it in D5W; I better put it in saline. So it should always be thoughtful. So you've chosen your solution and your volume. You have something called a reconstitution device. You've got your medication and you've got some alcohol swabs. And I've already filled out my drug label. Done some hand hygiene. So there's two ports here. The blue one's the one that we're going to connect the IV tubing into. And the other port is the one that we're going to access for the medications. So 15 to 30 seconds, let it dry. And just set that in a way that it's not going to become contaminated. Again, check your drug against your MAR. Drug dose, patient, time, flip the lid off. And actually the manufacturer wants us to clean these lids too. So another 15 to 30 seconds. Okay, and that's-- our time has lapsed and this has all dried. These reconstitution devices are pretty nifty.

F1: Especially how you get into them, eh.

F2: Yeah.

F1: There we go.

F2: All right. So thinking about principles of asepsis, we're going to go this onto the drug as opposed to the drug onto there. If we do it that way sometimes what happens is you end up with a little bit of medication in the bottom and there's no way to retrieve it. So we're just simply going to stick it on there. So what is

happening is there's a little needle that has pierced the rubber dam of our vial. Plus the needle is up here because we're going to take our mini bag and we're going to shove it through there. All right. And then we simply are going to squeeze it. I don't know if you can see the powder is dissolving already. Some medications need a little bit of a shake, so I suggest fold it over, squeeze it this way so that the vial doesn't go flying off and just gently shake it. There's some medications that are really hard to mix up. So sometimes you'll sit and shake for a couple minutes. Sometimes you'll put some dilutant in here like your normal saline and just leave it sit there for 20 minutes. Go do something else and then come back and it'll be ready for you. So then you have a look and if all of your powder is diluted, next we just need to transfer it into our mini bag. And simply-- you're squeezing it to displace this air up into the vial. I often say to students it's like milking a cow, until I had a student say to me, you've never milked a cow. And I haven't.

F1: That's right.

F2: Yeah, okay, so our vial is empty. It's in here. Now we're going to just remove everything off of here. If you just remove this and leave it on, there's an open pathway and things can leak out.

F1: So does that go in the sharps container?

F2: This becomes a sharps. We're going to keep our vial here for a second. Just do another quick check and then we're going to put our IV label onto our mini bag. Okay. Sometimes when I was learning about IV's I would make little notes on my IV label to infuse over 30 minutes or infuse over 20 minutes. Just as a timesaving

step so I didn't have to keep running back to the monograph. So that might be something that students think about. So I'm confident that I'm going to give this medication over 20 minutes. So now we'll go to the bedside. All right. Hi, Wendy.

F1: Hi, Renee, how are you?

F2: I'm well. So I've-- we have your IV med ready. Can you tell me your name and your birthdate?

F1: Oh, my name is Charlie Smith and my birthdate is February 15th, 1972.

F2: Thank you, very much. So I have your antibiotic for you. You've had it before. All right, so I'll just explain to you what I'm going to do as I'm doing this.

F1: Okay.

F2: So I've looked at the drug monograph. I know that I have to give this drug over 20 minutes. I know that it is incompatible with whatever medication has been hanging in this mini bag previously. So that's one of the first things you need to check. Are you compatible with your primary solution? Sometimes not. Usually yes. And then are we compatible with whatever's in this tubing here. So it's not. So all I'm going to do-- I could go ahead and go-- get a whole brand new secondary line. But I'm not going to. I'm simply going to backflush. And what you can see happening is this primary bag is draining. It's following the path of least resistance. And it's actually--

F1: Flushing right into that.

F2: Yeah, filling that up. So you have to think about gravity. It has to be below or it's not going to fill. All right, so we're going to at least fill the drip chamber and then

I'm going to shut this off. And then I'm going to empty the drip chamber and hang up my new med. And then principles of asepsis, just switch the tubing over. Follow your line, make sure you have no air. It's all about habit. I've opened this line now and I'm going to stop it. And I'm going to tell my machine that I'm running a secondary program. So the pumps are going to change over time. These pumps happen to want to know what drug are you giving because there's some safety systems built in. Sometimes they want to know the dose. So you're just telling it. And it'll--

F1: And remembering to say okay after every one.

F2: Right, 'cause-- and then-- okay, so it knows I'm going to give 1,000 milligrams in a 50 ml bag. I want to give it over 20 minutes. So now this machine is saying I have to enter at least 30 minutes or higher. So I'll say, okay, I can go over 30 minutes; that's not a big deal.

F1: So it's better to go a little longer than it is to go shorter, right.

F2: Totally, yeah. And then it asks me do I want to be called back when the infusion's finished. I don't this time. But if I had to give another med I might want it to beep just to remind me. So now it's asking me are my drips falling in my secondary chamber because if they're not, it means something's wrong with my system. So this you just have to be patient and watch for drips.

F1: And there it goes, yeah

F2: And here we go. So I'm going to tell it yes, and then is there anything more you need before I leave?

F1: No, I think I'm okay. Thank you.

F2: Okay, well, good. I'll see you shortly.

F1: All right. Bye.