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Unveiling the Numerous Benefits of RTA Prefilled Syringes

Dr. Turck:
This is *Clinicians Roundtable* on ReachMD, and I'm Dr. Charles Turck. Joining me to discuss ready-to-administer, or RTA, prefilled syringes and how they're impacting medication delivery is Dr. John Hertig. He's the Vice Chair and an Associate Professor of Pharmacy Practice at Butler University College of Pharmacy and Health Sciences in Indianapolis. Dr. Hertig, thanks so much for being here today.

Dr. Hertig:
A pleasure to be here. Thank you.

Dr. Turck:
So to get us started, Dr. Hertig, would you give us a high-level overview of how RTA prefilled syringes differ from other methods of medication procurement?

Dr. Hertig:
Yeah, absolutely. So when we're talking about ready-to-administer products, I'll refer you to a definition by the Institute for Safe Medication Practices, or ISMP. Many of us are familiar with ISMP. And a ready-to-administer product is an injectable product that typically contains an active drug and solution at the required concentration, volume, and really presented in that final container for administration. And so when we're talking about ready-to-administer syringe products, we're talking about those ready-to-administer products that are ready for IV push.

And what really differs with those ready-to-administer, syringe-based products from what we would call traditional vial and syringe is that they're ready to administer at the point of care, rather than having to pull it out or draw it out of a vial, and then use the alcohol swab and get the right amount, right concentration into a syringe, and then administer—what it's doing is it's cutting down a lot of that calculation, as well as a lot of that work at that administrative step in the medication use process, which as we know, is affiliated with really a ton of adverse events or medication-related harm. It's that sharp end of care. And that's what makes ready-to-administer products so attractive.

Dr. Turck:
Now RTA prefilled syringes, as you were alluding to, can have a range of impacts, but focusing on just one for just a moment, how do they facilitate and improve the medication administration step?

Dr. Hertig:
Yeah, I think that's one of these key points is if we look—let's just compare ready-to-administer syringe products against traditional vial and syringe practice, which we've been using for decades—and if you actually map out the steps associated with safe administration of traditional vial and syringe, as I mentioned previously, you have to calculate the right dose, swab the product, make sure the syringe is correct. If you're using an ampule, make sure you have a filter needle; there's all these different steps involved in administration of traditional vial and syringe.

With ready-to-administer product, it's ready to go. It's manufacturer prepared, right concentration, you have your dose ready, ready at point of care. And so there are actually fewer steps involved in administering a product that's ready to administer compared to traditional vial and syringe. And just simply put, fewer steps means fewer opportunities to do those steps wrong. And so what we've seen through a variety of different research studies is that ready-to-administer products tend to be safer because there are fewer steps, it's more clear, and that's been demonstrated through peer reviewed publication.

Dr. Turck:

It's not just incorrect dosing that we avoid, also potentially reduction in microbial contamination as well.

Dr. Hertig:
Absolutely. Because one of those key steps is aseptic technique and making sure that everything sterile, the sterile field is maintained, the medication isn't contaminated anyway. If that's not even included as a step, again, you can't do that step wrong. And so there are demonstrable improvements in reduction of antimicrobial contamination with RTA products.

Dr. Turck:
And what can you tell us about the cost effectiveness of RTA prefilled syringes?

Dr. Hertig:
Well, this is one of my most favorite things to talk about because I think it represents a shift in thinking in our health systems. Because rather than looking at a budget line item on an inventory sheet, we really need to be thinking about what is the total cost of care? And thinking about it beyond just a Department of Pharmacy budget, or a nursing budget, or an OR anesthesiology budget, we really need to be thinking about what are all those different factors that contribute to the expense of our healthcare services. And so that's cost effectiveness in a nutshell.

And what we've been able to do through RTA research, comparing to traditional vial and syringe, is take factors like waste of the product itself, workforce costs associated with compliance, with regulation around maybe controlled substances in an RTA versus traditional vial and syringe, and then even the actual safety and reduction in errors. And put all that into a cost effectiveness model that demonstrates that RTA products are significantly more holistically cost effective when compared to traditional vial and syringe.

Dr. Turck:
What other effects can RTA prefilled syringes have on patient safety and workflow? Anything else come to mind?

Dr. Hertig:
It’s significant. If you look, again, at some of our research that we've conducted, we did a time observation study where we actually walked around and clocked nursing time and nursing time complying with controlled substance waste. Waste in our health systems is a pervasive problem. And if we look at some of our controlled substances, like fentanyl, hydromorphone, and morphine, if we don't use that complete product volume, that has to be wasted, and it has to be wasted with a witness so that there's hopefully a reduction in diversion, that it's complying with regulation. That requires workforce time. And so what we did is actually clocked that time, and then put a time value on it, and it is significant. It's a significant portion of that cost effectiveness calculation.

Think about that, not only from the money standpoint, but think about now, if our nurses or others don't have to do that because we're matching product with practice, that we're providing products that are of the appropriate volume, not only now can we repurpose some of that time, so now the nurses or whomever is doing it don't have to do that. So now that they can focus on patient care, which is really why we're all doing what we do.

But in addition, now we don't have that extra waste floating around our health systems. And now we're getting into this diversion conversation. Because again, if you don't have excess waste, if you don't have excess controlled substances, to-be-wasted products, that reduces the likelihood that those are then going to be diverted somewhere throughout our medication use system.

Dr. Turck:
Now you'd mentioned some about the impact on nursing workflow. What about over on the pharmacy side and medication distribution?

Dr. Hertig:
Well, it's interesting. There have been a variety of different Consensus Development Conferences over the years, actually dating back to 1999 was the first, and then there was one in 2008, and then one in 2018. And these were essentially expert panels where they reviewed ready-to-administer products, other traditional vial and syringe products, a variety of different systems. And they rated them all on applicability, ease of use, regulatory compliance, safety, and all resources required. And these are like the brightest minds in pharmacy and beyond. And at each one of these Consensus Development Conferences, manufacturer prepared ready-to-administer products were the highest rated because pharmacists, pharmacies, those that are involved in sterile products compounding, understand the value of manufacturer prepared ready-to-administer products being safest, being sterile, being ready to go at the point of care, and the associated reduction in harm, as well as the workforce benefits associated with these products. And it's interesting that again, time and time again, these Consensus Development Conferences have come out with that specific recommendation.

Dr. Turck:
For those just joining us, this is *Clinicians Roundtable* on ReachMD. I'm Dr. Charles Turck. And I'm speaking with Dr. John Hertig about ready-to-administer, or RTA, prefilled syringes.

So, Dr. Hertig, what else could you tell us about how professional guidelines address how RTA prefilled syringes might impact the medication delivery process?

Dr. Hertig:
Well, I think we've talked about these Consensus Development Conferences over the years that have come out with really clear guidance, really clear statements. I think the actual statement from the most recent Third Consensus Development Conference was manufacturer prepared products are the safest IV drug delivery system and manufacturer prepared ready-to-administer, or RTA, products are preferred for patient use whenever possible. That's a pretty strong statement.

But it's not just these Consensus Development Conferences that are putting forth RTA as the preferred products; organizations like ISMP, the Institute for Safe Medication Practices, has also identified that RTA products should be used whenever possible, particularly manufacturer prepared products because they are consistently safe. And they include things like labels and labeling information that's consistent with ISMP labeling guidelines. This includes clear, easily understood, readable, and unobscured labels that, again, are consistent with best practices. They also often include label and barcodes, as well as RFID and other tamper-evident packaging that enhances safety for our patients.

So, again, whether it's ISMP, these Consensus Development Conferences, the WHO, RTA consistently comes out on top when it comes to safety and ease of use.

Dr. Turck:
Now we're almost out of time today, Dr. Hertig. But before we close, would you like to leave our audience with any other thoughts or insights on RTA prefilled syringes?

Dr. Hertig:
Well, I think this conversation around cost effectiveness in general is really important. And I do want to comment a little bit more around cost effectiveness because there are other jurisdictions in this world that have done more with cost effectiveness and health outcomes. Here in the United States, we're investing a little bit more into cost effectiveness, which is really important because we want to make the best use of our very limited healthcare resources. RTA products in our contemporary research that we've done, when we compare RTA, ready-to-administer, syringe products against traditional vial and syringe, there's a significant holistic cost effectiveness benefit that takes into account a number of different cost variables from the amount of waste in our healthcare system with these products, with our workforce time, which is incredibly valuable more now so than ever, as well as some of these other safety considerations.

And our most recent paper demonstrated, where we did a super robust evaluation of over 15,000 administrations, we found that in the RTA arm, that ready-to-administer arm, that the base case analysis of our cost effectiveness model showed that they saved $182 for every RTA that was used. That's significant. And then when we look at that over 15,000 administrations, you can demonstrate nearly $2.9 million U.S. dollars of savings by converting to RTA. That's only though if we take into account the holistic view of utilization of these; it's not just around the AWP or that WAC price, that one-line-item ledger, it's around how does this globally impact our healthcare system beyond just one budget or one silo? But how are we making the best use of our resources? And whether it be safety, whether it be reduction in waste, whether it be making the best use of our valuable workforce, RTA and these prefilled syringes consistently come out on top.

Dr. Turck:
Well, with those key takeaways in mind, I want to thank my guest, Dr. John Hertig, for joining me to discuss ready-to-administer prefilled syringes. Dr. Hertig, it was great having you on the program.

Dr. Hertig:
Thank you. It's been my pleasure.