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The Hidden Costs of IV-Push Controlled Substance Waste in Hospitals

Announcer:
You're listening to *Clinician's Roundtable* on ReachMD, and this episode is sponsored by Fresenius Kabi. Here's your host, Dr. Alexandria May.

Dr. May:
Welcome to *Clinician's Roundtable* on ReachMD. I'm Dr. Alexandria May, and joining me today is Dr. John Hertig, the President of Hertig Healthcare Advising Incorporated and Adjunct Assistant Professor of Pharmacy Practice at Purdue University. He's also the lead author of the study we'll be discussing today, which focused on the hidden costs and impacts of IV push-controlled substance waste in hospital settings. Dr. Hertig, thanks so much for being here today.

Dr. Hertig:
Thank you for having me, Dr. May.

Dr. May:
Well, let's dive right in, Dr. Hertig. This study evaluated more than 4,400 IV push-controlled substance transactions across 16 hospitals and found substantial variability in documentation patterns. In fact, many incidents required manual validation to determine whether medications were administered, wasted, or appropriately documented. From your perspective, what do these findings tell us about the complexity of managing IV push-controlled substances?

Dr. Hertig:
Well, thank you for that great question, and I think in many ways, it validates what we know: that documentation is not only varied, but it really is complex. And this study did identify those documentation gaps as well as continued workflow variation across multiple care settings, including procedural areas which are notoriously difficult as documentation systems may not be fully integrated.

And in many ways, it also validates our thesis and our philosophy here, where controlled substance management really does extend beyond just medication administration and involves these very significant different points of operational oversight. These IV push workflows really do remain difficult to standardize across health systems, and we know that they can be operationally inefficient, which is why we sought to measure them as part of our study.

Dr. May:
Now, one of the most notable findings was the frequency of partial-dose waste. 85 percent of midazolam transactions, nearly 79 percent of hydromorphone transactions, and 75 percent of morphine transactions resulted in exactly half a vial being wasted. So what do these patterns suggest about the relationship between product presentation, dosing practices, and medication waste?

Dr. Hertig:
Yeah. You may have been a little surprised by this. I think some of us were surprised by the extent to which we waste controlled substances. And in many ways, the data from this particular study validated our previous research findings, which also included a significant amount of fentanyl waste.

And what I see here is we have this consistent waste, which indicates a mismatch between product and practice. So we need a certain dose in practice, but for whatever reason, the available vial sizes or ready-to-administer sizes are not available. And so this mismatch between product and practice results in a ton of waste.

And what happens to that waste? Well, we have to use our valuable workforce to hopefully document and engage in compliance

activities with that waste. It also potentially leads to diversion because that's a lot of waste that's now floating around in our hospitals and health systems, so I get a little worried about compliance and some of our drug diversion issues.

What it does is provide an opportunity to create some standardization. We want to match product with practice, including dosing optimization and selecting the right products. Really, what we should be doing is seeking more ways to efficiently match our product with practice. If we match product with practice, then we have less waste. This is particularly important with our controlled substances.

Dr. May:
Absolutely. Now, we also saw that manually reviewing and validating 333 controlled substance incidents required an average of 6 minutes and 43 seconds per case. When extrapolated across all incidents, that represents nearly 500 hours of pharmacy labor per quarter and almost 2,000 hours annually. With those staggering numbers in mind, how should we think about the operational impact of documentation and reconciliation efforts?

Dr. Hertig:
Well, I think our research team was a little surprised. We knew that there was a lot of hidden waste, and we did find that hidden waste—we found it and then some. I mean, think about your valuable pharmacy resources and your workforce in the pharmacy department doing these reviews predominantly, representing one of the largest hidden resource demands identified in the study.

There's a huge labor impact here, and this highlights the labor required to support those compliance efforts as well as the associated documentation accuracy. So again, this represents an opportunity for us to find that waste. It's not only what we throw away, but it's that workforce waste.

So what we can do is use this data to identify: how do we more efficiently allocate our workforce? How do we maybe integrate technology or other operational considerations that allow us to free up some of that workforce to do more value-added activities and ultimately reduce administrative burden, which is going to increase staff satisfaction and compliance and lead to a better value proposition for matching product with practice?

Dr. May:
For those just tuning in, this is *Clinician's Roundtable* on ReachMD. I'm Dr. Alexandria May, and I'm speaking with Dr. John Hertig about real-world data on the impacts of IV push-controlled substance waste in hospital settings.

Now, beyond routine transaction review, the study also examined escalated compliance investigations and found that each diversion monitoring case required an average of 11 and a half minutes of pharmacy review time, which included data retrieval, documentation assessment, and recommendations for follow-up. So, Dr. Hertig, what does that tell us about the downstream effects of waste-related discrepancies on diversion monitoring and compliance programs?

Dr. Hertig:
Well, what it tells me is really good diversion monitoring and compliance programs are labor-intensive. Even if you have technology, which this particular site did; they use technology. So we have the technology helping us screen and segment potential areas of risk. We then have an initial review, and now what you're talking about with this question is that escalated review, and this is very time-intensive and thus takes pharmacy resources to then accurately reconcile.

So what this study did was then quantify that additional workload associated with these unresolved controlled substance transactions. And remember, you won't have an unresolved transaction if we match product with practice and if we minimize that waste. These escalated reviews do require structured analysis that often involve multidisciplinary follow-up.

So even though we measured the pharmacy impact, there could be a risk management impact. There could be a nursing impact. There are all these other impacts that aren't captured here that should also be considered in a really holistic analysis. What it allows us to then conclude is we need to balance this idea of regulatory oversight. How do we maintain compliance but then simultaneously integrate strategies to increase operational efficiency? Because it can get inefficient really quickly, and those hours add up, and hours are money.

Dr. May:
Now, the researchers also quantified the infrastructure required to support controlled substance waste management, and according to their estimates, more than 1.1 million dollars in waste receptacle deployment costs and approximately 322 thousand dollars in annual maintenance expenses would be needed. That being said, how should an organization evaluate these costs when assessing the overall impact of waste management practices?

Dr. Hertig:
I was really excited to include this in our particular study. I think before I go into the specifics of the answer, it's important for organizations out there to recognize that you need to use your own costs here. These were costs that I think are a good reflection of a

hospital this size, but these are going to be unique costs to each particular organization.

But what we did here by measuring this as an endpoint was, we had our product waste, which has a cost, right? You throw away product, that has a cost. We have our workforce time, which has a cost if used inefficiently. But then we also have the cost of disposal and compliance with disposal and ensuring that—particularly with controlled substances—we're disposing it in an irretrievable way. Well, that carries a significant cost, which you just very clearly went over. And so those are additional costs. The more waste we have, meaning the more we have to throw away, the faster our trash bins fill up. That in and of itself then carries cost. And so this study expanded this discussion beyond just medication waste itself to include these total costs of care, including equipment maintenance as well as these other labor requirements.

Again, this is going to give an organization a more complete picture of the total cost of ownership and those costs associated with poor utilization. So when we're making these management decisions that affect both pharmacy operations as well as global institution budgets, I think it's important to understand those total costs of care or those holistic costs. So when you go to buy a product, it's not just about what product's cheaper by a few pennies or whatever it is. It's about: what are all those different costs now that should be considered when making decisions on what products to bring into our facilities?

Dr. May:
And if we take all of these findings together before we close, Dr. Hertig, it seems that IV push-controlled substance waste affects not only medication utilization, but also pharmacy workload, compliance oversight, diversion monitoring, and operational spending as you just mentioned. So how can we use this real-world evidence to evaluate existing workflows, support greater standardization, and identify meaningful opportunities for improvement across care settings?

Dr. Hertig:
This is that ultimate question, and I'm so glad you asked it because what we need to do is, one, standardize as much as we can. Two, make sure we're matching our products with practice, particularly as it relates to controlled substances. Remember, we need to think beyond just the acquisition cost of a product; what are the total costs of providing that product safely and effectively to our patients? I think we also need to be incorporating really good documentation workflows as well as automation. Technology can be our friend, but only if it's implemented into really good workflows. Because if you implement technology into workflows that aren't working, it's not going to help you reduce waste or operational burden.

So what I hope this paper does is provide a forward-looking direction and discussion on these practical solutions that can ensure that we have better efficiency in our hospitals and health systems and that we're taking care of our workforce and ultimately providing the best possible care to our patients.

Dr. May:
With those final comments in mind, I want to thank my guest, Dr. John Hertig, for joining me to discuss the study's findings and implications for how we can improve medication use workflows. Dr. Hertig, it was a pleasure speaking with you today.

Dr. Hertig:
Always my pleasure. Thank you for the invitation.

Announcer:
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