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Pharmacist-Prescribing and Hypertension Management: An Economic Benefit

Dr. Cheeley:
Pharmacists are well placed in the healthcare system to screen and manage hypertension that could prevent millions of heart attacks, heart failure, and strokes each year. A pharmacist-prescribing method could also have significant economic impact on the U.S. healthcare system.

You're listening to *Heart Matters* on ReachMD. I'm Dr. Mary Katherine Cheeley, and joining me today to discuss a recent study, titled "Cost-Effectiveness of Pharmacist Prescribing for Managing Hypertension in the United States," which was published in *JAMA Network* in November of 2023, is Dr. Dave Dixon. Dr. Dixon is the Nancy L. and Ronald H. McFarlane Professor of Pharmacy. He's also the Chair of the Department of Pharmacotherapy and Outcome Science at Virginia Commonwealth University School of Pharmacy.

Dr. Dixon, welcome to the program.

Dr. Dixon:
Thanks so much for having me.

Dr. Cheeley:
I'm really excited to jump into this study, but I'd love to level-set with our listeners first. Can you tell me the current role of pharmacists in how we manage hypertension?

Dr. Dixon:
Sure. So I think out of all of the different areas that pharmacists play a major role in, I think hypertension management is one that we feel fairly confident. We have multiple robust randomized, controlled trials in community pharmacy settings in ambulatory clinic settings, and even barber shops, demonstrating that pharmacist-led interventions for hypertension indeed improves blood pressure control and improves medication adherence, which is, of course, an important aspect when you're talking about managing hypertension.

Dr. Cheeley:
So what made you guys want to look at it this way, specifically, talking about cost-effectiveness?

Dr. Dixon:
Yeah. So with all that evidence, as we know, it doesn't necessarily mean that that evidence is then implemented into practice. And so one of the things we wanted to do was really provide robust evidence that these interventions are indeed cost-effective and not just during, say, the short-term period of a study but actually extrapolate this out over a long period of time. And really ask the question of what would the cost-effectiveness look like if the uptake of a pharmacist-prescribing model for hypertension were to really be put into practice because ultimately, that's the end goal, is to implement these interventions in real world settings. So we really wanted to be able to say, "Is this cost-effective over the long hall?"

Dr. Cheeley:
I think that's a really great point because a lot of my patients, in particular, that I see or the providers that I see, they're a little bit reluctant to refer to a pharmacist to manage hypertension because they think, "Well, now the patient has more copays," or "You're going to put them on more medicines." So take us through your study design. How did you guys pick your population? What exactly did you do?

Dr. Dixon:
So this is an economic evaluation, a cost-effectiveness evaluation really centered around a five-state Markov model, and essentially, that is a frequently used cost-effectiveness model that looks at the different trajectories that a patient may follow over time. And so for high blood pressure, for example, you might have a blood pressure that's well-controlled today, and maybe a month from now it's not well-controlled, and so you're going to ping-pong back and forth. You're also going to then, of course, potentially be exposed to adverse outcomes, so maybe you have a cardiovascular event. You could, of course, die from a disease related to uncontrolled hypertension, so these Markov models are able to account for those different trajectories.

In terms of the data or the trial that we based this on, we used the Alberta clinical trial in optimizing hypertension study, also called the RxACTION trial, which was conducted between 2009 and 2013. This trial is the one that we chose because they actually used a pharmacist-prescribing intervention, and that's really critical here. We're not talking about pharmacists making recommendations. We're not talking about pharmacists just educating patients, not that those aren't valuable. But with hypertension, we know that lifestyle interventions are important, but the majority of patients are going to need two, three, or even more antihypertensive medications to really achieve blood pressure goals, and so we specifically used this trial for that reason.

Another reason is that the control group in this study received an active intervention, so they weren't just receiving what we would call true usual care and that they did receive a blood pressure wallet card with the readings and some education, and then, of course, they followed their usual care from the standpoint of managing the antihypertensive medications. And then our analysis, of course, took a period of time, about six months, to work through looking at the outcomes of that trial, and then actually adding in all the different costs that come into looking at cost-effectiveness.

And so my co-authors from Canada have actually done this analysis from a Canadian perspective, and that was another impetus for doing this to say, "Well, what if we apply this prescribing model to the United States?" Healthcare costs in the United States are much more than in Canada, and it's a very different model, and so that's again another key reason for why we wanted to do the analysis here in the United States and apply the results from the RxACTION trial.

Dr. Cheeley:
So I want to make sure that I understand one point of this because I think it's really important. The intervention group was patients being referred to a clinical pharmacist who actually got new prescriptions, new management, from the clinical pharmacist, right?

Dr. Dixon:
So this was in the community setting.

Dr. Cheeley:
That's incredible that it's community pharmacy because I think that makes so much of a difference when we talk about access. That makes more sense as to why you could have these four-week intervention points because patients can get to that setting much easier than they can back into an office appointment.

And then the other thing I want to make sure I understand is the control group. So the control group, you said, had an active intervention, so they were still seeing their GP or their PCP or whomever. But is the assumption made that that wasn't done every four weeks?

Dr. Dixon:

Sure. So they were also still engaging with the pharmacist. It's just that the pharmacist was really providing more of the education, providing them the blood pressure wallet card, and a key aspect here is at the six-month follow-up point, the intervention group achieved about an 18 millimeter of mercury reduction in blood pressure. And there's certainly a reduction in the comparator group but certainly was not comparable to 18 millimeters of mercury.

And if you look across other randomized, controlled trials looking at pharmacist-led interventions for hypertension, you will see a range, and so with our study design we certainly utilized the 18 millimeters of mercury difference seen in the RxACTION trial. But in various sensitivity analyses, we did use different ranges and different reductions in blood pressure, understanding that whether you're looking at a meta-analysis that suggests that maybe there's a six to eight millimeter of mercury improvement with pharmacist-led hypertension interventions, there are other studies that show that these types of interventions can reduce blood pressure by as much as 25 millimeters of mercury. And so regardless of what input we use there for that blood pressure difference, the cost-effectiveness still held.

Dr. Cheeley:
For those just joining us, you're listening to *Heart Matters* on ReachMD. I'm Dr. Mary Katherine Cheeley, and I'm speaking with Dr. Dave Dixon about a recent study that explored pharmacist prescribing in the management of hypertension.

Let's jump back in, and I want to make sure that we spend a little bit of time on the results. Tell me about these key findings because I was so excited to read about them.

Dr. Dixon:
So we applied the patient population, of course, from the RxACTION trial, and so these individuals were middle-aged, about 64 years of age, approximately 50 percent male and female, mean blood pressure at baseline of 150/84, so these were certainly uncontrolled patients. And when we looked over the 30-year time horizon, the pharmacist-prescribing intervention yielded 2,100 fewer cases of cardiovascular disease events and eight fewer cases of kidney disease per 10,000 patients. Now when we think about extrapolating that out to say, "Well, what would a 50 percent intervention uptake look like over a 30-year period?" The associated cost savings were over one trillion dollars, and this would also save an estimated 30 million life years over the 30-year period, so that was a huge number.

It really tells us that, A, this type of intervention, if it was implemented more broadly, could certainly be cost-saving to our healthcare system, but it also tells us that hypertension is, again, a leading contributing factor to significant morbidity and mortality throughout the entire world, not just the United States. And we've got emerging evidence showing that improving blood pressure control can also reduce the risk of those adverse neurocognitive events, chronic kidney disease, patients going on dialysis, all of these big events are extremely expensive to the healthcare system, and so when you look at it from that perspective, it actually makes sense that an intervention that could provide this type of robust blood pressure reduction would then demonstrate significant cost savings over time.

Dr. Cheeley:
I just want to put an exclamation point on that. You said trillion with a T?

Dr. Dixon:
I said trillion with a T.

Dr. Cheeley:
So here's where the rubber meets the road. How do we do this? How do we implement this in the United States?

Dr. Dixon:
So that's a great question and one that our group is actually actively kind of working on exploring from the standpoint, submitting a grant through PCORI, actually looking at implementing this in both Canada and the United States. And we are really looking at it from an implementation science perspective because I think, at the end of the day, that's what it's all about. And our hope is to be able to understand what the barriers are, where can we find those examples of actually implementing this.

I think a key aspect is related to the reimbursement piece. And there's been a lot of progress at the state level across different states

here in the U.S. to advance pharmacist reimbursement. And in terms of implementation between community pharmacy practice and thinking about partnering with health systems, what opportunities can we explore there? Electronic health record sharing, that is happening in some places, but how could we turn that up a notch in terms of making that more robust?

And so we tried to in the discussion of the paper go through some of these key issues because it is important that we recognize the challenges, and it really does come down to reimbursement, the electronic health record access, because I do think that communication back to the rest of the healthcare team is really important. It can't just be the pharmacists on an island by themselves managing these patients, and that's not what we're asking to do, and that's not what we're suggesting. So I think that's where that partnership with either health systems, nearby medical practices, is really important, and some of that is happening in different parts of the United States, including here in Virginia. So there is the Community Pharmacy Enhanced Services Network, for example. That's a network of pharmacies that are equipped to provide these enhanced services, most of which are independent community pharmacies, and so we're really trying to leverage those relationships to make this happen, so stay tuned.

Dr. Cheeley:
This has been an amazing discussion. I love the paper. I'm so grateful for the work that you guys put into it showing the impact of a pharmacist prescribing goes beyond just the immediate blood pressure but really does have a long-term impact.

So thank you so much to my guest, Dr. Dave Dixon, for joining me to talk about this study. It was a great discussion.

Dr. Dixon:
Thank you.

Dr. Cheeley:
For ReachMD, I'm Dr. Mary Katherine Cheeley. To access this and other episodes in our series, visit *Heart Matters* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening.