



Transcription

Speaker 1:

Welcome to the *ASHPOfficial Podcast*, your guide to issues related to medication use, public health, and the profession of pharmacy.

Charnae Ross:

Thank you for joining us for ASHP's Practice Journey Podcast. This podcast invites members to share their stories about their professional path, lessons learned, and how their experience has shaped, who and where they are today. My name is Charnae Ross, and I'm a PGY2 Health-System Pharmacy Administration and Leadership Resident at VCU Health and I'll be your host today. With me today are , Dr. Betty Petrovich, Clinical Pharmacist at Saint Elizabeth Healthcare, Dr. Will Hammond, PGY1 Health-System Pharmacy Administration and Leadership Resident at The Ohio State University, Wexner Medical Center, and Dr. Caitlin Prather, PGY2 Ambulatory Care Resident at Inova Health System.

Charnae Ross:

Thank you for joining us today. Let's get started talking about today's topic, best practices for preparing and presenting a journal club. The first thing that I think of as a student or a resident when my preceptor asks me to do a journal club is how do I find a good article or where do I begin my search? Caitlin, can you share how you go about finding a good article?

Caitlin Prather:

Yeah, sure. The first thing that I usually think of is where you need to look for a journal. Some of the common journals to find articles could include pharmacy-specific ones, so that could be *AJHP* or the Journal of Managed Care and Specialty Pharmacy. You can also look in general medicine journals, something like the Journal of the American Medical Association, better known as JAMA, and the New England Journal of Medicine. You may even want to look at journals that are in a particular specialty. So if you're maybe on a diabetes-focused APPE rotation, then consider looking at The Lancet or Diabetes Care.

Caitlin Prather:

It's also a good idea to choose a journal that's relatively recent, usually from the past six to twelve months, and this helps ensure that the topic is up-to-date with current treatment standards and guidelines, and that your analysis will be impactful on your current patients. You also want to consider the quality of the journal and journal article. One way to do this is by looking up the journal's impact factor. This is essentially a measurement of how much that



Transcription

particular journal has been cited in the last two years. In general, the higher the impact factor, the better.

Caitlin Prather:

You also want to make sure that your journal article is relevant to your audience. If you're on an outpatient ambulatory care rotation, you probably don't want to present on sepsis; you want it to be something that's more focused to that actual rotation. Journal clubs are typically done on randomized controlled trials rather than cohort or case control studies and that's just because the data from randomized controlled trials are typically more substantial and reliable when we're trying to apply these to larger patient populations. This isn't always the case, so just be sure to confirm that with your preceptor and see if they have a preference for the type of study or article that do yours on.

Caitlin Prather:

And then finally talk with your preceptor. See if there's any controversial or ambiguous topics that have come up during patient care or if there's a particular topic that could benefit the whole team, but try to pick one that you're interested in when you can, because that makes the whole process a lot easier too.

Charnae Ross:

Thank you, Caitlin. Those are all great tips. I personally like to start my search by looking at journals that interest me. I also think it's helpful to subscribe to monthly, weekly, or even daily alerts from your favorite journal to stay up-to-date on the literature. And that's actually how I found my most recent journal club article that I did a presentation on. So we've identified our article. Now I have to prepare to present. Betty, in your experience, what is the best way to prepare a journal club and what are some common mistakes that should be avoided during journal club presentations?

Betty Petrovich:

That's definitely a good question. Before I dive into some of the common mistakes that could be made during journal clubs and how to avoid them, I figured I could put a little plug in for our journal club handout, which will be linked to this podcast. It might be a good way to help people start off in terms of how to prepare for a journal club. As far as some common mistakes go, the most common thing I see is when people read directly from the article. That's really supposed to be a discussion and a presentation, so you want to avoid reading directly from the article and even from reading directly from your handout as well.



Transcription

Betty Petrovich:

You'll also want to make sure that you provide enough background. Making sure that you provide adequate background really helps orient the audience to the specific topic that you're doing or the treatment that you're going to be discussing. And it's important to make sure that it's relevant as well as concise. Some other mistakes that I see are incorrectly interpreting statistics, and we'll have more on that later. You'll also want to make sure that you don't repeat the author's conclusions as your own. Of course, it's important to state the author's conclusions, but you want to make sure you provide your own conclusion regarding the article, too.

Dr. Betty Petrovich:

Failing to connect the article to your pharmacy practice and or institution or specialty or area is another common mistake that I see. And finally, you want to make sure that you adhere to the guidelines of where you're presenting from. So your preceptor will have specific recommendations and expectations regarding the length of your presentation and or handout and other guidelines and things that they might want you to adhere to. So make sure you follow those and get those expectations from them.

Charnae Ross:

I agree, Betty. Those are all great points you touched on and I'm sure as students, and even as residents, we have been given valuable feedback regarding some of these common mistakes. Typically, when we prepare journal clubs, we start off with the background information regarding the topic or disease state in question. Will, what advice do you have regarding presenting background information?

Will Hammond:

Thank you, Charnae. And I agree that the background information is so important to really set stage for your journal club. So the first tip that I have is to really research that background information on either the disease state or the medication being studied and provide a brief overview. Now, keep in mind that this may look very different if it's a known drug and a common disease state versus a rare drug or rare disease state. So really consider your audience and consider what you're presenting to your audience when you're doing your research.

Will Hammond:

If applicable, discuss current guideline recommendations for the disease state, or the drug being studied. So some of these include where does the medication fit into the guidelines and why



Transcription

was the study studied in the first place? Or why was the study needed in the first place? Briefly discuss any pertinent landmark trials that may have led to the development of your study that you're about to discuss. And one quick way to do this initially is to really research some of those background studies that are listed in the introduction section of your study.

Will Hammond:

But also don't forget to do a quick PubMed search of the references and perform your own search. So this is not really meant to be a literature review for your presentation, but it's helpful to give you, as well as your audience, a little bit of context on what you're presenting. Next, I urge you to look at institutional standards or what the practice is for your current practice site, whether that be the hospital, the clinic, or the community setting. This will really impress your preceptor, too. So ask your preceptor or look on the resources provided to see what your institution or practice site is currently doing for the disease state or the medication in question.

Will Hammond:

For example, if the study is on vancomycin, is the institution doing AUC monitoring or are they doing trough monitoring? If on a disease state, does the hospital have a standard protocol or guideline pertaining to your medication? These are all good things to include in your presentation that again, will impress your preceptor. Are there other medications at your institution that are in the same class on the institution's formulary? And lastly, is the drug in your study on the formulary?

Charnae Ross:

Will, you've definitely provided some key pearls on how to present background information that we can all consider when preparing a journal club. I think the biggest thing I struggle with as a student and even as a resident is interpreting the statistics. And honestly, there could be an entire podcast series dedicated to this topic. But for the purposes of time, we wanted to briefly touch on interpreting statistics since it's critical to analyzing the results of a study. Betty, how do you approach interpreting the statistics?

Betty Petrovich:

Interpreting statistics can definitely be overwhelming and intimidating. And so it's important to know about some resources that might be helpful. Some that will be included and linked into this podcast episode include things like studying a study and testing a test. Now that we know about some of the resources that are available to you and some of the things that might help you, I figured I'd touch on some key points regarding statistics and some key things that you might come across as a student or a resident presenting a journal club.



Transcription

Betty Petrovich:

One of the first statistics that comes to mind is power. So what is the meaning of power and why do we care? Oftentimes you'll see that studies will conduct a power analysis. And what power does is it allows you to say with X certainty that if a difference between groups exist, you will find it. So if a study doesn't have enough patients and it's underpowered, it really makes it difficult to interpret if there really is no difference between the groups or if you didn't have the power to detect a difference.

Betty Petrovich:

Another common statistic that you might come across or hear about is number needed to treat and a number needed to harm. When should these be calculated and how should they be interpreted? I'm sure you are all aware that the number needed to treat is the number of patients needed to treat in order to prevent a certain outcome over the median length of the follow-up of the study. Number needed to harm on the other hand is similar, except for it is the number of patients treated for one adverse event to occur. Both of these can be calculated and I recommend you look up how to do so online.

Betty Petrovich:

There's several different resources that you can look into to see how you calculate that. But typically they should be calculated when there is a statistically significant difference between the groups for a given endpoint or adverse events. So if an endpoint is statistically significant, I personally would recommend always calculating the number needed to treat and or harm. And depending on the format of your handout, you can either put it directly into your handout or you might want to have it on hand to include in the discussion. And that might be institution specific, whether your preceptor expects you to calculate it, or if you might want to have it in your back pocket as a discussion point.

Betty Petrovich:

So how do we interpret number needed to treat a number needed to harm? For number needed to treat, generally a lower number is better because that means you need to treat fewer patients to get the desired result. But what low is will vary. When I was on my rotations, I had asked all of my preceptors, how do I interpret the number needed to treat versus the number needed to harm? And the best advice that I got was to calculate both, to calculate the number needed to treat for the primary and or secondary outcome, and to calculate the number needed to harm for adverse events. If these numbers are similar, it might indicate that the risk outweighs the benefit.



Transcription

Betty Petrovich:

Now that we've discussed number needed to treat and number needed to harm a little bit, I want to touch on statistical significance versus clinical significance. Of course, we learned in school that a statistically significant result is usually when the p-value is less than 0.05. However, how do we know if that is clinically significant for your patients? So for example, cancer studies often look at progression free survival. So let's say the study found a statistically significant difference of an additional three days of progression free survival for the treatment group compared to the control.

Betty Petrovich:

This result is statistically significant, but is it clinically significant? And when you look at the cost of the drug and the adverse events that the patient might have, is an additional three days of progression free survival clinically significant for your patient? Caitlin, do you have any other pearls you can share regarding interpreting statistics?

Caitlin Prather:

Yeah, so another point that I would like to add is that you should also determine if the statistical tests are appropriate. So you definitely don't need to be an expert statistician, but you should know if they were comparing two groups versus three groups, or if that test accounted for confounders, things like that. So you could be asked, why do you think they chose to analyze this outcome with a Cox proportional hazards model? Or were all the statistical tests appropriately chosen? So you should at least know the basics of those. That's also a good idea to know the general types of statistics used, depending on if the article is a superiority or a non-inferiority trial. So just trying to get the basics down can help you out a lot.

Charnae Ross:

Thank you, Caitlin and Betty for providing a brief, yet concise overview of interpreting the statistics. In addition to analyzing the statistics, it's also important to assess the article for bias that could potentially affect the results. Caitlin, how do you go about evaluating an article for potential bias?

Caitlin Prather:

So personally, the first thing that I do is I take a look at the inclusion and exclusion criteria. Try to see if they skew the baseline population one way or another. So for example, do they exclude very high-risk patients? That may affect who you can apply the data to when finding a way to



Transcription

use the article in patient care. You should also be sure to look for data that's hidden in the supplemental material. Sometimes authors may try to hide some unflattering data or data that had non-statistically significant results in the supplements. It's not always a bad thing, though, it could just be that there wasn't enough room in the main article to include all the data, but be sure to look at all of the resources that are available to you with each article.

Will Hammond:

Caitlin, another thing that I wanted to bring up is how did the authors actually present the results? So did the tables, figures and graphs actually represent the clinical significance? And what I'm talking about specifically here is really looking closely at their graphs and the Y axes, as well as the X axes to make sure that they actually make sense. Have they changed the values to be so close together that your graph looks very different from the intervention versus the control group? These are really good things to analyze when you're looking at the graphs and figures.

Will Hammond:

The last point that I'll bring up regarding bias is the funding and involvement of pharmaceutical companies. Now, when I first started evaluating literature, I thought that this was actually a bad thing, but it's generally expected that a company will provide funding for a study on a new drug, because if they don't do it, then who will? So try to dig a little bit deeper to see how involved the pharmaceutical company is with the design and analysis of the trial. You could also check if any of the authors have any conflict of interest in receiving funding from the company.

Charnaé Ross:

Will, you bring up a great point about pharmaceutical funding for a study, and it could be a good argument for a potential source of bias. When we think about presenting primary literature to a group of practicing pharmacists, their biggest question is how does this apply to patient care? Betty, do you mind sharing some strategies for applying the article to patient care?

Betty Petrovich:

Yeah, for sure. This is actually something I struggled with when I first started doing journal clubs as a student, I had trouble applying the article to patient care because I didn't have the clinical experience yet. So as I mentioned earlier, one of the main things to avoid doing is simply stating the author's conclusion. Of course you'd want to state the author's conclusion, but you really also want to form your own opinion. So when I was first starting out, a lot of times what I would do is I would look at the commentary underneath the article to see if other people mentioned



Transcription

anything noteworthy. I would also see if anyone's sent a letter to the editor regarding their article. And of course I would not let these commentaries or these letters to the editor bias my opinion, but it really would help shape my own conclusion regarding the article.

Betty Petrovich:

You also really want to make sure you're looking at who you're going to apply the results of your article to. So who is going to benefit or not benefit from the results of the study that you're looking at. And typically what helped me the most for this was looking at the inclusion and exclusion criteria, as well as the baseline characteristics of the patient's study. And that really helped me hone in on who we can apply the results to. Caitlin, do you have any other clinical pearls to add related to applying articles to patient care being in the amb care world?

Caitlin Prather:

Yeah, sure. One other thing that I would want to consider is cost. So a lot of times these trials are going to be on new drugs, so you would want to consider what is the price of that drug and also consider whether a patient is actually going to be able to afford it. And this may just depend on their insurance, but knowing some of that information can be helpful. You should also consider overall costs. So this is especially important if you're on a rotation that's in managed care or population health or ambulatory care or something like that. So something to think about is that the drug may be expensive, but does it lower rates of re-hospitalizations? Because if it does, then it may be cost effective overall for the health-system and even for the individual patient too. So trying to think of things from a broader perspective as well can add another perspective to your presentation.

Charnae Ross:

So far, we've talked about crafting your journal club from background research all the way through applying it to patient care. Will, what final tips do you have for students who are preparing a journal club presentation on their APPE rotation?

Will Hammond:

Charnae, I'm glad you asked. I think that the first key for having a successful journal club presentation is truly to set your expectations early. So if you're not told by your preceptor, I encourage you to just ask what the general expectations are. Do they have a specific format or template that they want you to use? Is there a time limit or a page limit? For a journal club handout, the optimal length is around one to two pages, but still clarify with your preceptor as it does differ depending on the institution. I also want to put in an additional plug here for our



Transcription

journal club resource that's listed under the ASHP New Practitioners Forum resources page under pharmacy research and journal club.

Will Hammond:

Next up, I would also ask the preceptor if they want slides or no slides. For example, one of my APPE institutions always wanted a platform presentation, whereas another institution really left it up to me. And some institutions may really prefer handouts and conversation-style journal clubs. Another thing to ask would be how many people are in attendance. This really helps you plan out how many handouts you'll have to print out and if you are the one to print out those handouts. For your audience, assume that they have read your article, but not that they understand and have analyzed the article as in-depth as you have.

Will Hammond:

It's also a good idea to read opinion articles and news articles about your journal article, if they're out there, but don't let them bias your opinion. It is okay for your conversation and presentation to be a little bit controversial, especially if it is more of a handout style journal club. And remember, this is your presentation, but it should also stimulate good discussion. My final thought that I'll leave you with is that the goal of this presentation is not necessarily to defend the article, but your goal is to critique and provide your analysis of the article so that others can apply it to practice. All studies do have their strengths and limitations.

Charnae Ross:

I hope our listeners have taken some great notes that can be used when preparing their next journal club article. That's all the time we have today. I want to thank Betty, Will and Caitlin for joining us to discuss best practices for preparing and presenting a journal club. Join us here every Thursday, we will be talking with ASHP members and content matter experts on a variety of clinical topics.

Speaker 1:

Thank you for listening to ASHP Official, the voice of pharmacists advancing healthcare. Be sure to visit [ASHP.org/podcast](https://www.ashp.org/podcast) to discover more great episodes, access show notes, and download the episode transcript. If you loved the episode and want to hear more, be sure to subscribe, rate or leave a review. Join us next time on *ASHPOfficial*.