



**Article:**

Jason P. Burnham et al.

*Clinical Effect of Expedited Pathogen Identification and Susceptibility Testing for Gram-Negative Bacteremia and Candidemia by Use of the Accelerate Pheno™ System.*

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<http://jalm.aaccjnls.org/content/3/4/569>

**Guest:** Dr. Jason Burnham is an Associate Hospital Epidemiologist and instructor of medicine in the Division of Infectious Diseases at Washington University in St. Louis.

Randye Kaye:

Hello, and welcome to this edition of "JALM Talk," from *The Journal of Applied Laboratory Medicine*, a publication of the American Association for Clinical Chemistry. I'm your host, Randye Kaye.

Guiding antibiotic use has gained increased focus for both sepsis management and antibiotic stewardship. Faster pathogen identification and susceptibility testing can reduce inappropriate antibiotic use and has the potential to decrease mortality through better matching susceptibility with known resistance.

"Clinical Effect of Expedited Pathogen Identification and Susceptibility Testing for Gram-Negative Bacteremia and Candidemia by Use of the Accelerate Pheno™ System" was published in the January 2019 issue of *The Journal of Applied Laboratory Medicine*. This work evaluates the clinical impact on a new device for pathogen identification and antimicrobial susceptibility testing.

Specifically, the researchers looked at possible impacts and clinical outcomes for patients located in the emergency department and intensive care units. The first author is Dr. Jason Burnham. Dr. Burnham is an Associate Hospital Epidemiologist and instructor of medicine in the division of infectious diseases at Washington University in St. Louis. His research interests include multi-drug resistant organisms and sepsis. Welcome Dr. Burnham.

Dr. Jason Burnham: Well, thanks for having me Randye.

Randye Kaye: My first question is a simple one, why is this study important?

Dr. Jason Burnham: Doctors have two main goals: the health of individuals and the health of the population. And we know from previous research that the longer it takes for a patient to receive the correct antibiotic the more likely they are to die. We also know that if we use too many antibiotics, antibiotic resistance for the whole population can go up and that's bad

for patient outcomes. So, our study shows that with this Accelerate Pheno System, we can find out more quickly which antibiotics are going to work best for each patient.

So, that means each patient is getting the right antibiotic faster. In addition, it also means that overall, we're using narrower spectrum antibiotics and we're probably using less antibiotics. So, there's going to be less drug resistance for the whole population.

Randy Kaye: That's sounds great. Having just gone through two rounds of antibiotics myself, I'm not sure they worked. I think that sounds like a great idea, but I'm not critically ill. I want to know what are the implications for critically ill patients?

Dr. Jason Burnham: So, critically ill patients are folks who are being cared for in intensive care units. And if you're in intensive care unit, you're the much higher risk of dying while you're in the hospital and we know from previous studies that, if you're in intensive care because you have an infection, if you get the right antibiotics more quickly, you're more likely to leave the hospital alive and you're more likely to have a shorter duration of stay in the hospital.

And so, this Accelerate Pheno System is showing us that we will be able to get these patients antibiotics sooner. Meaning they're going to die less often, they're going to stay less time in the hospital and the less time you spend in the hospital, the greater your quality of life and the more quickly you can start recovering from your illness.

Randy Kaye: Absolutely. Those all sound like excellent outcomes to me. Now, how will the study help antimicrobial stewardship efforts?

Dr. Jason Burnham: As it stands now without using this technology, the Accelerate System, the current paradigm is really that, if you are a critically ill, intensive care unit patient and you have an infection, you're going to get a broad-spectrum antibiotic as quickly as possible. And that's really the antithesis of antimicrobial stewardship. When we look at our study and patients who had these infections, most of them didn't require broad spectrum antibiotics. At the end of the day, when we had all the results from all the tests so, if you can get those test results sooner, you'll be able to give targeted antibiotic therapy more quickly and reduce the usage of these broad-spectrum antibiotics which is exactly what antimicrobial stewardship is wanting to do.

Randy Kaye: Now, what does this mean for patients with drug resistant infections?

Dr. Jason Burnham: That's a great question. One of the major findings in the medical literature is that patients with drug resistant infections, because they have such hard to treat infections, they're not getting the right antibiotics up-front and so, they often have significant delays compared to people with drug susceptible pathogens in getting the right antibiotic. And really, what our study shows is that, the Accelerate System is taking some of that guesswork out of antimicrobial prescribing. So, if you have the results one to two days sooner, then we do currently in the current model, the patients with drug resistant infections will be getting the correct antibiotics one to two days sooner than they would otherwise.

Randy Kaye: Thank you. That sounds like a very interesting study and a very important one. So, thank you so much for joining us today.

Dr. Jason Burnham: Thank you so much for your time.

Randy Kaye: That was Dr. Jason Burnham from Washington University in St. Louis talking about clinical impact of expedited pathogen identification and susceptibility testing from the January 2019 issue of JALM. Thanks for tuning in for "JALM Talk." See you next time and don't forget to submit something for us to talk about.