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Project Goal: Understanding Summit's Leadership Role in Creating the Next Generation of Antibiotics: A Conversation with Management

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Project Time: 11:00am ET

Speakers:

Glyn Edwards:

- Chief Executive Officer, Summit Therapeutics
- Thirty-year career in the life sciences industry, during which time he has held a number of senior executive and business development roles.
- Prior to joining Summit, he was interim Chief Executive Officer of the UK trade body the BioIndustry Association (BIA) and Chief Executive Officer at Antisoma plc for 13 years, and Vice President of Business Development at Therapeutic Antibodies Ltd.

David Roblin:

- Chief Operating and Medical Officer, Summit Therapeutics
- Has brought many medicines in several therapy areas through R&D to commercialisation, including in anti-infectives azithromycin, ciprofloxacin, moxifloxacin, voriconazole and maraviroc.
- Prior to joining Summit, he was Chief Operating Officer and Director of Scientific Translation at the Francis Crick Institute in London, Head of Research and Chief Medical Officer for Europe R&D, and Head of Therapy Area for Anti-infectives at Bayer AG.

Call Sponsor: **Summit Therapeutics**

Summit is developing new mechanism antibiotics for the treatment of serious infections.

Summit's strategy focuses on developing new mechanism antibiotics:

- Designed to be specific to a pathogen or infection.
- Aimed at meeting the unmet needs of patients and healthcare providers.
- Developed to be commercially attractive with compelling value for payors and healthcare systems.

The company's goal is to achieve commercial success by replacing the current standards of care.

David Roblin: Hey, Joe.

Call Leader: Hi, everybody.

Glyn Edwards: Hi, Joe.

Call Leader: Hi, good to speak with you. We have Dave and Glyn there it sounds like?

David Roblin: We do.

Glyn Edwards: Yeah.

Call Leader: Okay, great. Before we get started today, I just want to do a short compliance agreement. I know that we don't really need to probably do that as much as we do with KOL calls, but while everyone dials in, just for protocol, let's do the short compliance agreement at the beginning.

Glyn, David, thank you very much for taking the time for this call today. I'm looking forward to really learning more about Summit and the antibiotic space. For compliance purposes, I'd like to confirm a few key points which I'll read through, and you can grant your verbal consent at the end.

Glyn Edwards: Sure.

Call Leader: Great. First, this call is being recorded and transcribed, and a transcript of the call will be available to members of the Slingshot community. Second, you attest you will not disclose any material nonpublic information, or information that will break any confidentiality agreements by which you are bound. Glyn, do you agree to these terms?

Glyn Edwards: I do.

Call Leader: Great. And David, do you?

David Roblin: I do.

Call Leader: Perfect. And I, too, am required to keep any material nonpublic information confidential. I attest that I will not share material nonpublic information, or information that will break any confidentiality agreements by which I am bound. In addition, I'd just to note this call is intended for informational purposes only, not investment advice. The contents of this call, including any and all information provided regarding individual securities or industries, do not constitute financial, legal, or tax advice.

Then just the one last quick note for everyone listening, this call is provided to you free today by the generous sponsorship of Summit Therapeutics. Summit is a clinical stage drug discovery and development company advancing therapies in areas of high unmet needs, specifically antibiotics.

Guys, I appreciate you getting on the phone with me. It's been a couple years since I spoke with you with the Slingshot community. And David, it's the first time we've been on the phone together. It's great to have you both. Maybe just to give everyone a sense, since it's been a while, and David, you're new, a short introduction on your background. I know up on the page, we have some of your career history, but maybe just how you came to work specifically at Summit, what attracted you to it, and maybe the key things you think you bring to the story.

Glyn Edwards: Yeah, it's Glyn here. So I've been in the basic industry for rather too long. Immediately prior to joining Summit, I was the CEO of the BIA, which is the equivalent of Bio in the UK, the BioIndustry Association. What we're trying to do here at Summit is really quite spectacular in that, we're really trying to develop antibiotics in a whole new way. We'll get into that in a bit more detail shortly.

David Roblin: Joe, I'm Chief Operating Officer and the President of R&D here. A Physician Scientist, and spent time in the UK health service, the NHS, but also Bayer and Pfizer.

At the start of my career, I did a lot of work on antibiotics, particularly azithromycin, ciprofloxacin, moxifloxacin, and also drugs like anti-fungus like voriconazole. I then moved up my career in Pfizer, and became Head of R&D outside of the US, based in the Sandwich site in the UK, and was in that role until 2010 looking after a number of therapy areas, which I think has been useful to give me a perspective coming back into antibiotic R&D now with Summit.

But I left Pfizer and went into biotech, and also spent some time in the Francis Crick Institute, which is a cutting edge discovery institute in London. But joined Summit because I think there's a huge medical need, and we have the opportunity to address it, which is always a sweet spot for an R&D guy to working.

Call Leader: Yeah, definitely. I want to get into a lot of those different specific there. Kind of the way I wanted to structure this conversation is, to give people a quick sense of your lead asset, and how you guys are thinking about antibiotics differently. Then really dig in on the commercialization and landscape. I just know from talking to members in our community, and a lot of the different investment groups I'm in that have looked at other antibiotic platforms, there's a lot of questions around business case and commercialization.

So I want to dig into that after we do just a quick level of where you guys come into the picture, and then we'll come back around at the end, I think, to kind of big picture stuff for the antibiotic landscape. And then end it with specifics around your Phase III and things like that, just so that people have an idea of timing and things to be looking for.

But maybe we could start off with the lead asset, and you could provide just an update on your Phase III trial, what you've done to speed enrollment, things you learned from the Phase II, and really what the real use case is for your lead program and how it differentiates itself before we get into the broader landscape and commercialization picture.

Glyn Edwards: Yeah, so ridinilazole is a precision antibiotic for the treatment of C. difficile infection. It's a narrow spectrum agent, and it's from a brand new class. Actually, there'll probably be a number of themes that you'll hear going through this, and ridinilazole exemplifies those. Those can be summarized as new mechanisms of action, new targets, firstly. Secondly, really smart development. Let's find some patients where there's a really high unmet need, and we can really show that this drug is better than the current standard of care.

Then the third element is building health economics into it so that you can really see not just is there a benefit for patients, but there's a benefit to the healthcare system. So ridinilazole, treatment for C. difficile infection has a really good science program behind it showing it's very potent at taking out all the clinical strains you can imagine for C. diff. And that's really a function of the new mechanism, that it's really potent against all the strains that we see.

And because it's narrow spectrum, it preserves the microbiome, and that has a huge impact on the big unmet need in this disease, which is recurrence. So you significantly reduce recurrence if you can preserve the microbiome in these patients, which ridinilazole does, whereas the other treatments that use standard of care does not do that. It damages the microbiome, and you get really high recurrence rates. So with that in mind about the disease and about our drug, David will just take you through what's going on in the Phase III, the stages of the Phase III, and how the Phase II really informed what we're doing in Phase III, and what we'll bring to market.

David Roblin: So we were lucky, although by planned design, we ran a Phase II trial in basic design, in basic population, and endpoints. It is almost identical to the Phase II program that we've embarked upon. And that's important because oftentimes in development, a very tight definition of disease, and a narrow population is used in Phase II in order to magnify the response of your drug. We did not need to do that.

So we had a broad population in Phase II, which is very similar to what we have in Phase III. The practical importance of that is that we hope to see a similar response rate for our drug against vancomycin. So there's something implicit on the design that gives us confidence that we can recapitulate the exciting results that we saw in Phase II.

We have, indeed, started the Phase III program. We started and enrolled the first patients in February, so we are off and going. And the other important thing for a biotech, biotechs don't often get to do Phase III, but when they do, you have to be careful to bring people into the biotech who have run Phase III programs for the biotechs and other companies. We've recognized that, and brought in people who have delivered successful Phase III programs.

At the moment, there are very few other medicines trying to become first line therapy in CDI. We have an historical database published and otherwise from other sponsors that ran Phase III Clostridium difficile infection trials in the past decade. And from those, we're able to see the key sites, the ones that recruit many patients. So we've been able to learn from what others have done before.

But I think the most important thing that makes this doable is the excitement around the product. We try and publish as widely and as quickly as possible in Summit. The publication of the Phase II trial in Lancet ID a couple of years ago was very important. That created a good deal of excitement because obviously, reducing recurrences in the way we did is really important for patients, really interesting to physicians. That's excited people to be involved in the trial. We've seen that as we've been recruiting sites to get this done. Quite simply, patients and physicians want to be involved in a clinical trial for a medicine that is going to prevent one recurrence in every five patients treated. It's an exciting project to be part of.

Call Leader: Yeah, and I wanted to get into that when we get back towards the end about what's to look at and think about in the Phase III, and how it all ties into the commercialization here. But David, you said something interesting. I wanted to hear maybe a little bit from a historical perspective, you mentioned that it's a narrow spectrum antibiotic. We've talked about this previously, and I think I talked to it on the last KOL call we did with you guys with Dr. Martinello around the conflict of narrow spectrum versus broad.

Maybe could you put that into historic context to me a little bit, and how that relates to maybe some of the even bigger media pictures, we hear about nothing new in antibiotics and things like that, just how the evolution of what an antibiotic should be has changed, and how that fits in with what you guys are working on.

David Roblin: Yeah, and in fact, it follows my career pretty much, Joe, actually. When I was back in Pfizer and Bayer developing antibiotics, physicians ... and actually, when I was a practicing physician, had to treat diseases empirically. So a patient came in, let's say, with a pneumonia, and the physician has to make a judgment what organism might be causing that pneumonia. And as a result of that, they tend to have to cover many organisms, and therefore, there was a desire to use very broad spectrum agents that hit gram-positive, gram-negatives, anaerobes.

One way of looking at this was, you have to take out the neighborhood, frankly. You give an antibiotic that napalmed the neighborhood to ensure that you killed the bad guy. And that was required because there was a lack of very modern diagnostics, bedside diagnostics, and we might talk about diagnostics a little later. What we've seen in the past several years, and accelerating now actually, is the advent of diagnostics which allow physicians to, at the bedside, to determine what organism they are treating. So what organism is causing the pneumonia, and that allows them to use a more precision antibiotic.

And again, the analogy there is, take out the bad guy in the neighborhood and leave the neighborhood spare. For us, the neighborhood is the microbiome, and the importance of keeping the microbiome free is because the microbiome, of course, protects us from infection. And secondly, it's important in our general health and well-being, and the information on this is becoming more and more evident. And ridinilazole-

Call Leader: Is that being used now currently in patients, or how is the bedside testing being done? What's it mean for treating right now?

David Roblin: Yeah, let's take CDI. Let's move to Clostridium difficile infection. We have diagnostics. We have a PCR-based diagnostic, and an antibody-based diagnostic that picks up the toxins that Clostridium difficile produces. These are both very rapid tests. They can be used at the bedside on the stool of the patient. And within 30 minutes to an hour, the doc knows exactly that he's treating a diarrhea, and the diarrhea is due to toxigenic Clostridium difficile. So you can use a narrow spectrum agent, unlike years before, you had to use a very broad spectrum agent. And vancomycin, of course, the main drug that's currently used in this indication is a very broad spectrum agent.

And ridinilazole is very narrow, it only really hits Clostridium difficile, which is a part of the Peptostreptococcus. And it's also quite precisioned because ridinilazole is poorly absorbed, and it's poorly absorbed by design because the infection of these patients is in the gut. It's not a systemic infection. So ridinilazole is precision and targeted because of its spectrum, and because of its presence really only in the gut.

Call Leader: Got it. So maybe that's a good segue into the commercial considerations. I've read a lot about how both in broad media, and then investors in some other recently approved antibiotic companies really feel like some sort of legislative sea change needs to happen, or some sort of big picture thinking on antibiotic stewardship needs to occur. But how are you guys thinking about commercialization? Do you see that, that's a requirement in order to have a successful drug launch? How does this kind of specific infection testing tie into the picture in your mind. And I guess, are you planning for a sea change, or planning for how things are and see it passed over there? I mean, what's the core business case right now for you guys, assuming the Phase III works out and you get on the market?

Glyn Edwards: Yeah, so I think there will be a sea change in policy that will be very advantageous for new antibiotics. But these things always take a lot longer than you would like. So we plan to be successful if the climate stays exactly as it is now. And the way to do that is to develop new antibiotics with new mechanisms of action, but to select your patient populations in the particular diseases you study carefully. So we aim to find new antibiotics for infections where there's a really high unmet need, where the current treatments are not working very well, and the C. difficile infection is one of those.

If you go to the US CDC's website, they've identified the top three critical threats where we really need urgent treatments, and that's probably a good place to start when you're looking for really high unmet need. And what that does, it means if you've got a new effective treatment, and your current standard of care is not working that well, then you have a chance to show a benefit, you have a chance to show that your drug is better than the current treatment.

So with our Phase III C. difficile trial, this is a superiority study. The endpoint of this study is to look at the sustained clinical response, and show that we are better than vancomycin. We were able to show that in our relatively small Phase II study, and so we're pretty confident of being able to show that in our much larger Phase III study.

So the first element of commercial success is, is there an unmet need and are you satisfying that? Are you going to do better than that? That's really important for the medical community and their patients, are they going to get a better product. But also, what we'll see worldwide, and we really see in the antibiotic space, is an emphasis on cost and value. Now antibiotics are one of the few areas where if you can cure someone that wasn't cured before, that you have a really major economic impact on those patients.

But it's also about showing that your better treatment has an economic impact on the hospital, the payer, or the provider. So we're building in health economic outcomes into our clinical study design. So this Phase III design is more expensive than it otherwise would be, and patients are followed up for longer because we've incorporated additional endpoints that are really important to the insurance companies in the US, the hospitals in the US, and the same in Europe. So even in the current climate, we'll have a package on launch that is, first of all, aimed at the regulator that meets the endpoints and gets you a label and your approval.

Secondly, it's very powerful to the patients and the medical community why demonstrating that our treatment is better, is statistically superior to the current treatments. But also, we have the data to go to the payers to say, "By using this more expensive up front antibiotic treatment, you will save money because the cost of treating 100 patients with ridinilazole is very much less than the cost of treating 100 patients with vancomycin." And the big driver of that, that cost saving in the case of ridinilazole is reducing the recurrences because when a patient has a recurrence, it's very expensive for the healthcare provider to treat. They'll be back in the hospital, the cost of the hospital treatment, the cost of the additional antibiotics, the cost of keeping them alive while those antibiotics work is very material.

So we see this going forward in all our programs new mechanisms, superiority studies or finding a group of patients where there's an unmet need and we can be better than the current treatments, and getting the health economic outcomes data to show that even with a higher sticker price, the saving to the system is going to be a lot higher. And actually, if you look back in other therapeutic areas, that's what you have to do anyway. We don't see why antibiotics should be any different to that. You should only be developing treatments that are novel, have a high level of innovation, create value to the patient and the medical community by meeting the problems caused by the current treatments, and then also showing that the value to the hospital system and the payers from using these new treatments.

Call Leader: Got it. And just to understand a little bit on the economic, how well aligned are all the different people in that? So it seems like these are really predominantly dispensed and decided at the hospital level, but then there's some payers involved, and the overall economic benefit for getting patient outcomes, the cost savings of avoiding readmission takes a little bit of a big picture approach.

How well aligned is the healthcare system right now to take advantage of a product that enables that versus saying you know, we can make more money off the patient coming back, or it might not be our patient, let's ... or maybe it's that this is well thought out. How well is the existing structure going to take advantage of something like this that can obviously save money on pharmaco-economic benefit, but not necessarily on an individual obvious one?

Glyn Edwards: That's a really good question, Joe. In the past, in the US in particular, things were not very well aligned in that, if you go back 10 years or so, hospitals would be paid for treating the first infection, and actually, whoopie, if there was a recurrence, that was great. They got paid a second time. That is no longer the case. And if a patient comes back into the hospital, certainly within 30 days, which is where most of these recurrences occur, then the hospital has to pick up the tab for that. So there is significant alignment at both the payer and the overall institutional level.

When you dive into the institution, you do start to find some differences. For instance, the pharmacy, they're only really interested in the drug costs. So the pharmacist is going to want to use vancomycin, which is really cheap, rather than a new drug. So you may think that, that creates some inherent conflicts, but actually, this is where the antibiotic stewardship movement really comes to our rescue here in that, good practices meant the growth of stewardship committees in hospitals and in treatment units, which bring together the medics, the microbiologists, the pharmacists, the payers into one room to take a holistic approach about what is the right drug for the right bug.

So actually, things are pretty well aligned for our more revolutionary approach of bringing in things with new mechanisms of action, and bringing data, as we've already discussed, that makes a powerful case for using the drug. So actually, even though healthcare systems are somewhat different throughout the US, and you've got the different types of the system, and then within Europe, you have more socialized medicine, the data we're getting should work pretty well in both those regions.

Call Leader: Got it. So Glyn, I think the biggest criticism I hear, and even a debate this morning with some people about this whole approach, it's that antibiotics need the world to change in order for something to happen. But it sounds like the pharmacoeconomic math and thinking and incentives maybe already have aligned, and so you guys don't see significant ... It would help to have some more thoughtful legislation, but you're not banking on it, is that fair?

Glyn Edwards: I think it's going to come, and the world almost certainly will benefit from that. But we don't need that for our immediate success. If it does come, we will get additional benefit from it.

Call Leader: Got it. And so maybe just, not to criticize any direct or specific competitor, but when you look out at the landscape of recent launches in antibiotics, what do you think those companies did wrong? Is it that they didn't have this data? Is there something else that you saw that you could learn from? What lessons did you learn? I mean, it seems like this is one of the key things you built into your program, but what have you done to change the development of this relative to the, let's say, last 10 or 15 years of antibiotic launches?

David Roblin: So I think the formula for success is actually in the last new class antibiotics that were launched. But the problem is, you have to go back 18 years to get to that stage, and that formed the bedrock of our strategy. So our strategy is about new classes of antibiotics. So these antibiotics that work in a different way. They start as innovation, and working in the different way is important because they are not going to be affected by existing resistance issues. Then if you think you've got a better drug, you can't prove it in the traditional way, which is to run a non-inferiority trial against the standard of care, which is almost certainly generic and cheap now.

So we've taken the view that you need to identify a patient population that you can study where you can show that you're better, and then you can argue, based on data, that your drug should become standard of care. So you need to pick your development program really carefully. So in your new class of drugs, you need to advance it in a development program that is a significant medical need, and important need. You can demonstrate an impact on that patient's prognosis through a clinical trial.

So for CDI, it's been a new class of drugs, ridinilazole is a new class of drug. And it's been the use of a superiority endpoint in Phase II and Phase III in order to show the drug is substantially better, clinically and statistically superior to vancomycin, the standard of care. So those are the first two things. And then if you can show those things, you've got a more than a fighting chance of showing health economic advantages. So you can afford to put those in the program in order to pick up the savings through a lack of recurrence, a lack of hospital readmissions that your drug will provide healthcare.

Glyn Edwards: So what have the other guys not done, then?

David Roblin: Well largely, we've seen the last new class of drugs launched, really a common antibiotic, was daptomycin, which was launched in about 2003, I think. That did very well because it was launched at a time of a significant medical need. The medical need then was methicillin-resistant Staphylococcus aureus, and they tackled that, and they tackled specific indications where MRSA was problematic. That was particularly in skin infections, and also in blood stream infections and endocarditis. They had a good drug. It was bactericidal drug, but they showed that it was the case within the clinical trial. And daptomycin, whose trade name is Cubicin, it peak sales were, I think, $1.3 billion. So that is the formula of success.

And the problem in the last 18 years, we've seen no new classes of antibiotics brought to the marketplace. We've seen a group of important incremental innovations on analogs of existing classes. That's been further compounded [inaudible] innovation impact that they've been developed in non-inferiority trials generally where they've been shown to be similar to standard of care. And the regulators will give you an approval on that.

But of course, what we've also seen happen in the last 20 years is the advent and the advance of the payers, groups like NHS in the UK, like the insurers in the US, who understandably ask well, it's all very well and good to have an approval, but why I should I use this more expensive agent? What costs will this expensive agent help me defer? To be frank, when you've got an analog in a non-inferiority trial, that's a really difficult question to address.

So we can't be there, and this is one of the learnings that we've had from the history. But also frankly, one of the learnings from other therapy areas where you wouldn't think of advancing a drug unless you could improve on standard of care. So our business is all about innovation in the science, creating new classes of drugs, and ensuring that we can develop them to show improvements to a patient's outcomes.

Call Leader: And actually, we seem to come to one of the last things I wanted to focus on today. You said it's been 18 years since the last new mechanism, and I think part of this we touched on earlier with narrow spectrum as a concept, but I want to hear you guys kind of put it all together. I saw that your Discover platform announced its first asset recently. Maybe talk to me about how you guys are coming up with new mechanisms, the platform generally, and just why you, after almost 20 years of nothing really coming to market, you guys seem to be having one very close to market, and what looks like something that could be producing a lot of them. How is that happening? Why are you guys able to get to that place? And maybe tie together some of things you mentioned earlier.

David Roblin: Yeah, thanks for the question, Joe. And so the platform is called the Discover Platform. It's essentially a genomic platform, so it uses sequencing, bioinformatics, and some smart people to create libraries of information where we're able to look into the genome of a bacteria and determine which genes are essential to bacterial survival.

And it turns out, this is normally, roughly about 10% of a bacteria's genome. That then creates a series of genes, and obviously proteins, that we know are essential and could be drug targets because if we can knock them out, then we know through these genetic libraries that the bacteria do not survive. Some of those genes and proteins and pathways will have already been the targets of existing agents, but a whole host of them are not. Some of them will be druggable, some won't. But it's creating an opportunity space for us that is really exciting. So we can identify these essential genes.

The other thing the platform allows us to do is, as we're developing the chemistry to kill the bacteria through that target, we're able to develop chemistry that is less likely to be subject to resistance mechanisms. So we can develop chemistry that is not degraded by certain enzymes, or not subject to efflux pumps, which is often a big problem with some of the bacteria we're working with. And so this is creating an opportunity space that few have seen previously.

The best analogy I can give is, 20 years ago we began to understand the genome of HIV. HIV was around 10 genes. We're now getting to the stage where we can understand the genome of a bacteria, which is several thousand genes. So we're at ... It's essentially the application of modern discovery science to an ancient problem, and it's terrifically exciting.

Call Leader: Yeah, very interesting. Maybe just to wrap up, if we could talk a little bit about the timing of the Phase III trial, and when you're looking to read out, and some things that you guys are thinking we should be watching over the next couple years on that front, and how you guys are thinking about enrollment. I think you made a couple comments in the very beginning, but just to kind of close out here. How are you guys ensuring that the number of patients will be met, and really, what are the things that we should be thinking about over the next few months, two years on the Phase III?

Glyn Edwards: Sure. But before we do that, I'll just round out what David said about the platform in that, it's kind of validation of what's come out of it. We have a new gonorrhea antibiotic coming out of it, a new mechanism of action. And as you point out in your question that we've also got an Enterobacteriaceae, a new mechanism of action antibiotic come out of that. Those, if you take C. diff and those two, you've got the top three critical pathogens that CDC wants to see. We can talk about the genomics and how exciting it is, but the proof of the pudding is we're generating brand new mechanism of action antibiotics against really important bacteria.

Glyn Edwards: But to get back to-

Call Leader: Well actually, to follow up on that point, maybe just when you think about the development of an antibiotic broadly, is the risk ... am I understanding that's there's a little bit less of an efficacy risk on those types of things, and that they work in early models against the bacteria, and you can feel a little bit more confident than typically, you can stand more on the efficacy side of that? Is that a fair way to think about it, that the efficacy signals are a little bit more dependable in antibiotics as you move forward through the development, and they're like any other drug, you have to still think about safety and systemic things? [crosstalk 00:35:25]-

Glyn Edwards: Yeah, you're absolutely right. There's a group at Tufts that have been looking at the industry, and looking at success rates over many, many years, and antibacterials do have one of the highest probabilities of getting to market once they're through Phase I. It's thought to be exactly as you describe in that, the efficacy, you usually see that in the test tube and in animal models. So the risk, which is true of all drugs, but the main risk then becomes the safety, which you'll see in animal testing, and then you'll see in Phase I. And of course, some toxicities only really show up when you look in larger populations.

But if you look at the overall success rates with antibiotics, it has higher chance of success, higher chance of getting to market. But more importantly for a company like ours, it means if there is ... The main reason for clinical failure is safety. That tends to occur early, and of course, the worst kind of failure is after you've finished the big Phase III program and spent 10 years and hundreds of millions of dollars. So there is some big advantage if you're going to fail early in that, you don't fail late. So yeah, it's one of the really interesting things.

So the nature of your questioning has been really, but many of the people, your clients don't like antibiotics because they haven't been able to make money out of it. I find that really interesting having been in cancer and other areas before in that, there's clearly a high unmet need. You can't get away from the Wall Street Journal, the New York Times, CBS 60 Minutes, there are regular programs about how antimicrobial resistance is going to change the way we do medicine, and not in a positive way.

And at the other end, there's some really cool science going on, but antibiotic companies have lost money, investors' valuations are down, and it's not been a great place for investors. I think that comes back to David's point, a bit of that can be this innovation gap if you're not going to deliver the data that shows that your new drug is really going to benefit the patient and the payers. Then that makes it hard work.

But it also means, I think there is a great future if you can get this right, if you can develop new mechanisms, if you can find those indications that are on 60 Minutes where patients are failing on the current treatments, you can do trials in those areas, and then also provide the economic data. I think there's a great future for companies that can do that.

Call Leader: Great. Okay, and then I guess maybe just some of the enrollment concepts around the ridinilazole trial, what's going on and why you guys are confident in being able to hit those numbers. I know you had done a few things on enrollment. And I think I'll see if there's any questions from anyone, but that's been the things I wanted to cover today.

Glyn Edwards: Yeah. So we estimate that this is a two-year enrollment phase for the ridinilazole Phase II studies. There are two studies going along in parallel, each recruiting about 700 patients. About half the patients in both studies will be recruited in the US, and the rest globally. But the main reason we're confident about the recruitment times is, as we said, there have been three really large studies carried out in this patient population in last four or five years. If we look at the average enrollment rate per site, we've used those

numbers in our feasibility.

And the one big advantage we've got is actually all three of those programs went on at the same time. So they were recruiting at those rates while they were all fighting for the same patients. Whereas right now, as we carry out Ri-CoDIFy studies, we are the only people doing a large Phase III study in this particular patient population. So we've got a good team, feasibility looks good, two years enrollment.

Now this is an acute disease, so the follow up isn't that long. The actual primary endpoint of the study is 40 days after initiation of treatment. There's 10 days of treatment and then a further 30 days of follow up for the primary endpoint of sustained clinical response. But we actually follow patients out to 90 days for the health economic outcomes data, some of the information that payers want to see, look at some of the longer term things. But it means that after the last patient is recruited, that last visit is 90 days after that. So we're aiming to have the headline data in the second half of 2021.

Call Leader: Got it, okay. Yeah, so I think those are all the questions. Like I said this morning, people really wanted me to focus in on the business case, and I think we've done that. So I really appreciate you guys both getting on the phone. This was really interesting to me, and I'll be excited to see how this progresses over the next few quarters.

Glyn Edwards: Yeah, we feel really good about this. So I think we really need new antibiotics, and our business is about making antibiotics great again.

Call Leader: Okay. Well, great. I appreciate both your time today. Have a great evening. It's always a pleasure to talk to you guys.

David Roblin: Thank you.

Glyn Edwards: Thanks, Joe.

David Roblin: Bye.

Call Leader: Bye-bye.

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