The Biopharma Confidence Index
The BCI Brought to You by Kineticos Life Sciences and Worldwide Clinical Trial

The **Biopharma Confidence Index**, or BCI, is intended to be a forward-looking index designed to measure C-Suite and Executive Leadership sentiment in the biopharma industry asking questions about their confidence levels concerning key issues. We look for the BCI to become a valuable and highly sought-after resource for its unique insights across both key industry-related issues and critical business functions.

Moderator

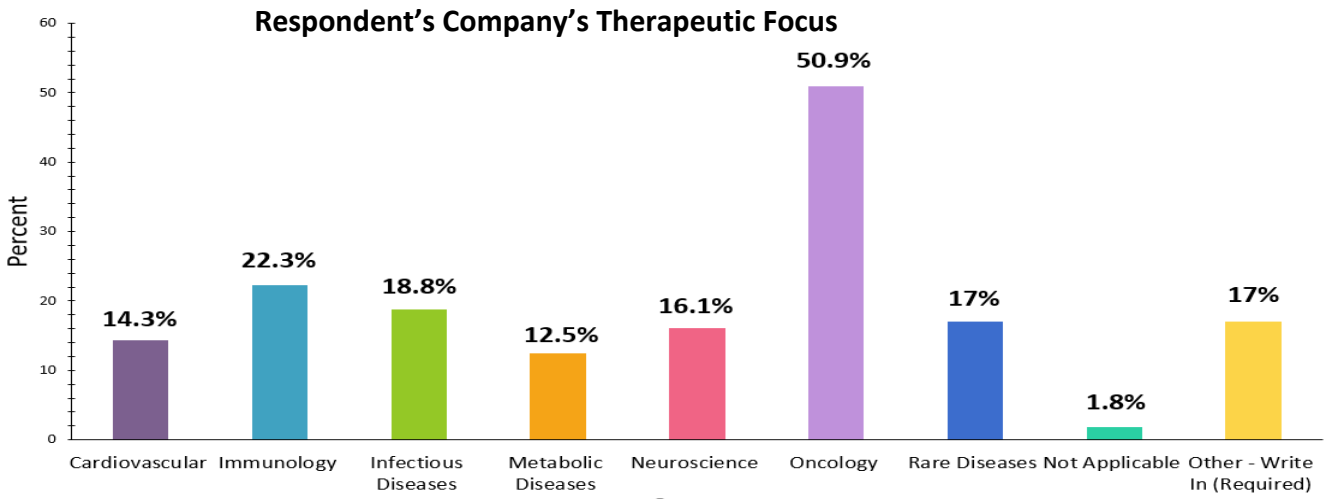
- **Philip Gialenios**, Chief Commercial Officer, Kineticos Life Sciences

Panel Members

- **Aman Khera**, Global Head of Regulatory Strategy, Worldwide Clinical Trials
- **Dan McCormick**, Senior Vice President, Kineticos Life Sciences
- **Tom Zietlow**, Operating Executive, Kineticos Life Sciences

Moderator: I want to thank our three panelists for joining us. We once again have Aman Khera, Global Head of Regulatory Strategy, Dan McCormick, Senior Vice President of Biopharma at Kineticos, and Tom Zietlow, Operating Executive for Kineticos.

Over the first quarter of 2020, we have delivered five panel discussions covering five specific sections of the Biopharma Confidence Index, or BCI. The data we have shared is based on 112 respondents. We are sharing responses from those who acknowledged a confidence level of eight (8) or above in relation to a scoring scale of one (1 = no confidence or no importance) to ten (10 = high confidence and high importance). Our respondents are C-Suite and Executive Level Leaders working for private, startup or mid- to large-size pharma companies. In our first panel, we covered the **Fundamental Elements of Running a Biopharmaceutical**. The second panel covered the **Impact of AI, Machine Learning, and New Technologies**. Our third focused on **Raising Capital and Mergers and Acquisitions**. For our fourth panel, we discussed **In- and Out-Licensing Activities and CRO Outsourcing**. Our fifth, and final discussion today focuses on **Sales and Marketing Concepts, Political Pressures and Overarching Economic Effects.**



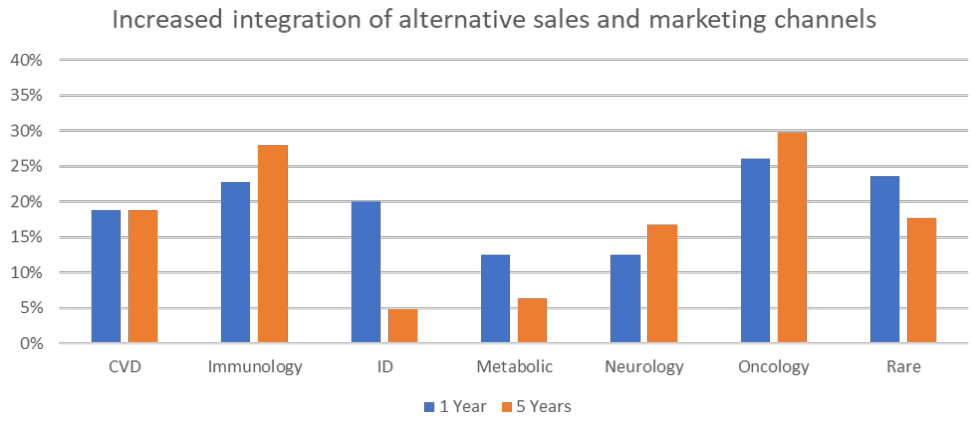
Moderator: For our first set of charted data and questions, we asked our respondents, first segmented by their main therapeutic indications, their confidence level in the next year and then again in the next 5 years that they will integrate alternative sales and marketing channels in their commercial activities. We followed up looking at the same response results regarding integrating such alternative sales and marketing channels in the next 1 year and then 5 years in their commercial activities but segmented by the company type. Looking at the data, surprisingly there is not a large difference overall between 1 and 5 years regarding when companies will integrate alternative commercial channels, with the exception of a lower confidence in 5 years versus current expectations for Infectious Disease. Also, we maxed out with the highest confidence level overall at 28%.

To the panel, are you surprised that alternate sales and marketing channels are not expected to become significantly more important in the next 5 years, as one might expect, versus expectations over this next year? Is there a lack of accepting and seeing the future? Or, is this indicative of the opposite, and a lack of major change is expected because our respondents see changes and shifts closer on the horizon and that implementation of alternative channels will happen sooner rather than later? What explains Oncology, Immunology and Rare Disease being somewhat higher?

Sales and Marketing Concepts

Graph (Top): %Highly Confident of Increased integration of alternative sales and marketing channels by Focus Indication

Graph (Bottom): %Highly Confident of Increased integration of alternative sales and marketing channels by Company Type



Insights:
Not a large difference between 1 and 5 years in the growth of non-traditional sales and marketing channels. Overall high confidence levels (10-28%) are not very high either.

Dan: At first glance, I was surprised. However, after looking closer at the actual respondents in the survey, I was not as surprised. Most of the respondents are from companies with earlier stage assets. It's likely that any of their forward thinking, at this point, will be in context of foundational and traditional sales and marketing channels. And, when considering companies with pre-launch assets, the feedback here is aligned with market research around physician preferences which indicates more than half of all physicians prefer traditional face-to-face engagements. After that first year, however, face-to-face engagements are valued primarily for service calls and delivering samples.

Aman: That is my current thinking as well. More than anything, how sales and marketing work hasn't changed. I wonder whether the environment is truly ready for disruption, or, possibly, displacement. I think right now it's more of an integration of additional streams. Are the real outliers going to be patients demanding or advocating for products in better access to information? Is that also going to be part of the potential alternative streams? Everyone understands that there is a traditional model, but looking at the data, we are seeing that there needs to be some displacement or disruption with these alternative streams.

Dan: For more established companies, like big pharma, there is more effort and resource allocation geared toward leveraging alternative channels, especially with their post-launch brands. As it relates to the differences across specialties, I'm not surprised with this respondent pool to see Oncology having the highest interest for leveraging alternative channels. There have been a number of studies over the past several years that indicate field sales access to physicians within certain specialties has declined and continues to decline, with more than half of the HCPs out there being identified as being "no access." It's noteworthy that multiple studies have suggested that of all the specialties, Oncologist have the least amount of time for field sales reps and are the very hardest to access. Rheumatologists top the list as well. One study indicated that 75%-85% of Oncologists and Rheumatologists are restricted access for field reps. Cardiology followed closely with approximately 60%. On the one hand, we have this survey data indicating overall lack of physician receptivity to field force engagements; and on the other hand, it's not surprising that we have other surveys indicating the same percentages around Oncologists and Rheumatologists, that is 75%-85% of them, are the most active with internet searches and go online at least once daily to search for information. These specialists have also been found to be the most likely to open email from pharma. We can't neglect physician receptivity to social media either. Two-thirds of HCPs are engaging with social media to get information. When looking at the company types we've surveyed, established companies are already engaged with integrating alternative channels and do not expect change in the relative near-term while the start-ups are prioritizing the foundational elements of their strategic plans in check.

Tom: Looking at this data, it occurs to me to ask whether there's going to be some innovation coming out of smaller start-ups. Is there going to be an Amazon-type engagement where doctors are getting more of your information in a pooled sense like reviews from their peers on drug use and outcomes? You begin to wonder if a company can be innovative in how they set up a pool of information from peers around their drug choices or drug approach. It will be interesting to look at the next few years and see how things are changing.

Aman: That would fit well in the Rare Disease space, for example, where there might not be as many products or the patient population is small. In that space, information sharing is key. You can see more collaboration going on and that may be a potential new channel stream.

Tom: It's a collaboration that can be enhanced by the drug company. They're hands-off, they're not putting in their data but they're saying, "We've set up this portal and we have only people who are experts in this area." I'm interested to see how that comes out and if it does.

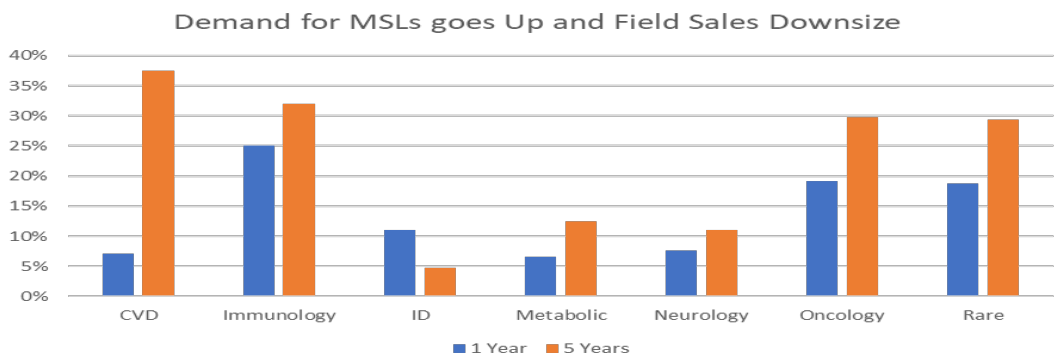
Moderator: You're right. How do you create these portals that are worth engaging and share data and information with your prescribers; and potentially share real-world evidence data and how do you do that in a highly regulated world? Then you have to figure out the next iterations of shared experiences for these patients. It's important to have these portals for patients not only to gain information, but to share their experiences. Especially in the Rare Disease area. This would be something that patients most likely would embrace and engage.

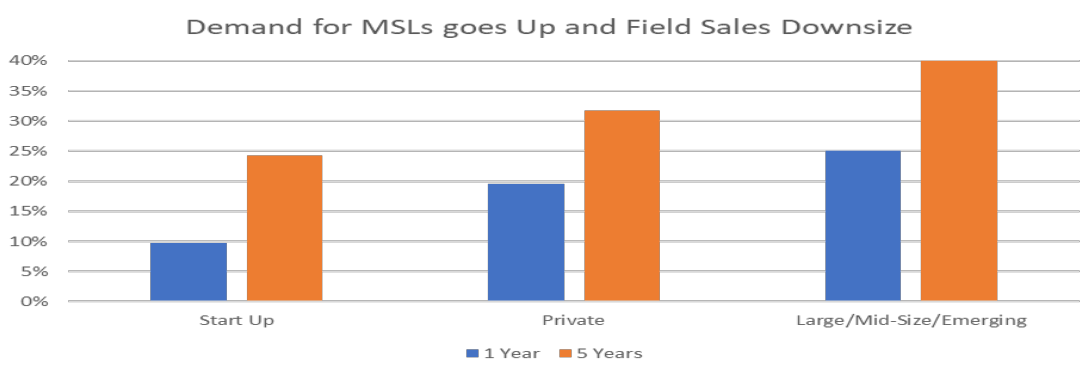
Aman: You can expect patient advocacy groups to be involved in this. I have heard there are some Amazon-like solutions being developed now.

Moderator: For our second set of charted data and questions, we asked our respondents, again segmented by their main therapeutic indications, about their confidence that they will increase their use of MSLs while reducing their field sales numbers. First, we looked at this from the point of what they felt might happen in the next year. We then went back and asked what they felt would occur in next five years. Next, we looked at that same data and those responses segmented by company type. Transitioning from field sales to MSL led commercial efforts appears to be the long-term plan for most. We again see similar therapeutic areas as top indications moving to more MSL engagements. They include Oncology, Immunology and Rare Disease. We also see the top positive response data coming forward from mid-size to large companies.
Does this data set showing the same therapeutics indications embracing alternative channels in the first data set now also highest in plans to reduce field sales and increase MSL resources match your expectations? Are there any specific explanations for the higher numbers with these indications, Immunology, Oncology and Rare Disease?

Sales and Marketing Concepts

Graph (Top): %Highly Confident of Increased Demand for MSLs (Medical Science Liaisons) with downsizing of Field Sales force by Focus Indication
Graph (Bottom): %Highly Confident of Increased Demand for MSLs with downsizing of Field Sales force by Company Type





Insights:
Transitioning from field sales to MSL lead sales and marketing appears to be highly focus area and company type dependent.

Dan: In our discussion about the previous data set, we commented on declining field rep access to physicians over the last several years while physicians engage alternative channels. Not surprisingly, one of the alternative channels preferred over field sales is MSLs. Not surprisingly, physicians would prefer a peer-to-peer scientific exchange with a credentialed colleague person. There is a study from the past few years that is very indicative of what we're seeing. In the last 5 years, there has been a 10% increase in industry demand for MSL support. The most significant increases in demand are in Oncology and Immunology. This is due to the complexity of the disease states. Another indicator supportive of what we're seeing is that the ratio of field sales representatives to MSLs which has declined notably over the last few years. ZS Associates has pulled together a nice survey over the last several years: in 2014, for every ten field reps, there was one MSL; in 2016, that ratio went to 9:1; and in 2018, it went to 8:1; with specialties, Oncology teams have a ratio of 7:1 and some specialties, like Rare Disease, have ratios of 3 and 2 to 1. There is no doubt that there is an increased demand for MSLs. A large majority of companies want MSLs in the field when their assets are in Phase II—when launch planning, 8 out of 10 companies state they want MSLs to hit the ground during Phase II; however, less than half of these companies are actually doing this. My hunch is industry's shift to an MSL intensive model will continue to increase.

Aman: I can confirm Biopharma are looking at MSLs as early as Phase II in development. Developing the key opinion leader relationships in their spaces is not being addressed at launch, or only after the product has been developed. CROs are now helping to support key opinion leadership relationships through their own medical science liaisons. Big pharma is calling on smaller companies to give that input. This could relate to capitalizing the MSL relationship or science-based commercialization as opposed to traditional field sales physician detailing. Key opinion leaders are leading us to long-lasting levels of engagement with those prescribers and influencers. Those relationships are harder to establish and maintain. Maybe this is why biopharma are looking well before launch.

Right now, we are also seeing how the traditional physician detailing is already being transformed into e-detailing. The days of resource intensive physician detailing are over. It's a combination of building those foundations with key opinion leaders through MSLs so you can spread information widely electronically.

Moderator: With an earlier discussion panel, we spoke about artificial intelligence and machine learning and how biopharma focused on cardiovascular were some of the leading companies those by far. What might be the reason for such a low number moving to MSL engagements in year one, but a much higher expectation for a dramatic change in the cardiovascular area in year five?

Aman: I think the most logical explanation is that AI advancements will disrupt this space. We simply have more access to data in this indication that we are already collecting and looking to purpose with engagements.

Dan: I agree with your point about the volume of data being cultivated in the cardio space will likely drive the need for additional expertise. I think this is true not only for cardiovascular, but for Oncology and Immunology as well. We are seeing a trend with MSLs where there has been an increased need for specialized expertise to help manage volumes of complex data, especially as it relates to health economics and outcomes. Over the last few years, there has been a 20% growth in these types of MSLs who distinguish their expertise in a manner that can help with HEOR. There have been a couple of significant launches within the last 5 years. Much HEOR effort continues to be necessary to justify higher prices for novel therapies.

Moderator: As companies are moving more toward MSL supported commercial activities and away from the traditional sales model, does this evolution change how consultants and CROs support biopharma?

Dan: I think it does. Biopharma's increased demand for MSLs is expected to continue to increase. A favorable regulatory environment coupled with an increased demand will drive the need for innovative approaches. Right now, the supply of MSLs is struggling to meet the demand for this expertise. If you follow the money, companies pay more for MSLs—one study indicates that that MSLs have higher percentage pay raises relative to their industry colleagues in other functions. In our first panel discussion, we talked about leveraging multiple channels in the commercial context. The same principles from a commercial aspect apply from a medical affairs perspective. I believe there is an even greater opportunity to integrate these channels together to supplement MSL organizations. Consultants can help to shift the paradigm when thinking about building out KOL engagement strategies and capabilities. In addition to channel strategies, consultants can help industry build better metrics for MSL organizations beyond the standard number of KOL interactions.

Aman: As there are changes in the law, the favored regulatory environment and the various industry codes, they have limited the access of sales rep teams to HCPs. Hence, the number of MSLs have steadily increased and they're playing an integral role, more than ever before, in developing and managing a relationship with healthcare KOLs and providing medical information. How are CROs supporting this? I have seen how MSLs are engaged in the CRO environment. It can be a very rewarding experience for professionals that are MDs, PhDs and PharmDs. It really speaks to

developing and maintaining the relationship. Technological advancements aside, how drugs are being adopted for utilization is to engage the HCPs accordingly and keep that channel of communication and momentum flowing.

Moderator: At Kineticos, we are starting to hear questions of how to potentially best leverage MSLs on the clinical diagnostics side and how companion diagnostic and other overlays of clinical diagnostics fit into patient engagements and bringing on patients for clinical trials. You have many clinical diagnostic companies trying to understand how MSLs can best help engagement and improve those relationships. They're looking for companies like Kineticos, as well as CRO's, to help understand how they're going to successfully make that transition.

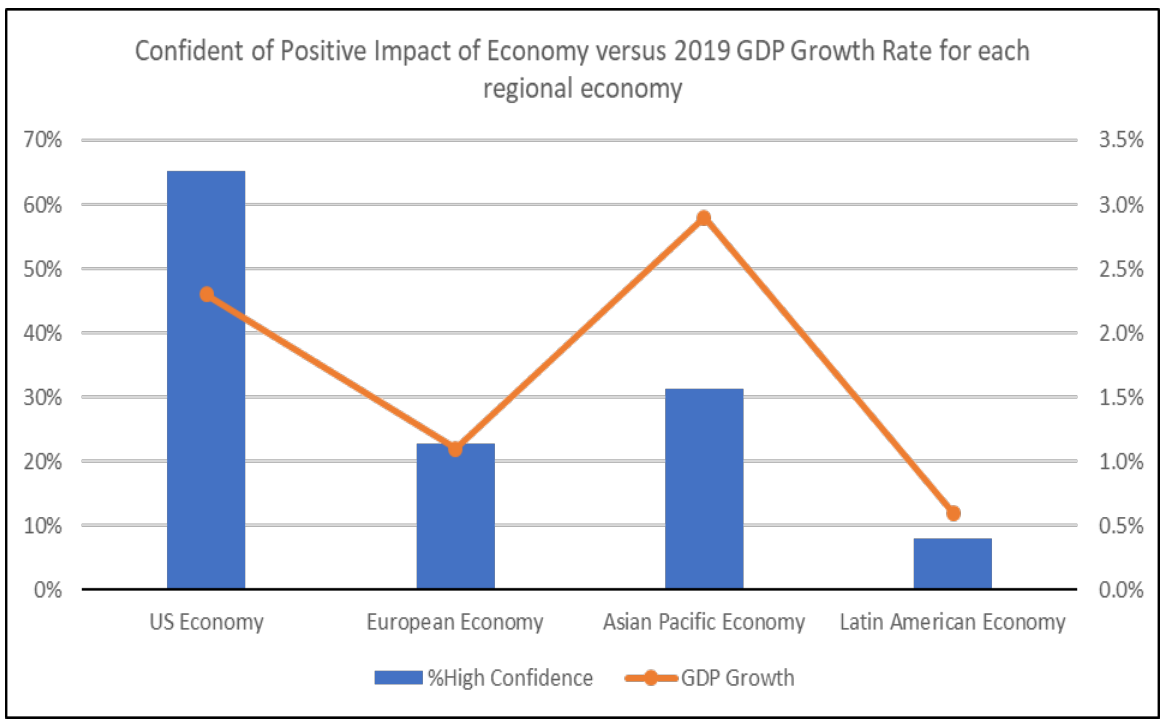
Aman: The lines are definitely being blurred, and it is an exciting time to be involved in this progression of clinical development of new drugs.

Moderator: In our third set of charted data and questions, we asked respondents to share their confidence in specific regional economies (U.S., European, Asian-Pacific and Latin American). We followed up by asking if political pressures would impact how they looked at investing in specific countries. We overlaid what was, at that time, the GDP for each region and found that the confidence tended to follow GDP. The political issues that might impact investments seemed to be highest in the United States, United Kingdom and China. With your recent experience, has investment in clinical trials in Europe been lower and not able to keep up with the U.S. and Asia-Pacific? What factors might be driving that decrease?

Finally, this survey was run well before Covid-19 became the pandemic outbreak it is now and creating the issues we are now facing globally. However, we would be remiss if we did not speak to Corona Virus and how this is impacting the future views of economic growth, potential political pressures, and how biopharma might view investing moving forward.

Effect of Economic Growth and Political Pressures

Graph: %Highly Confident of Positive Impact of Economy versus 2019 GDP Growth Rate for each regional economy



Insights:
The confidence in regional economies mirrors the growth in GDP for each region.

Aman: This data is not surprising at all. Over the past few years, there has been a shift generally with less trials in the European Union, as the Clinical Trials Directive came into force. To remedy this, there is a new European Clinical Trials Regulation that has yet to be implemented. One of the hopes for this regulation is that it will increase the number of trials in the region. Both of these initiatives have been undertaken with the spirit of harmonization, but of course countries will have their local nuances. Additionally, the UK leaving under Brexit speaks to these political pressures.

The U.S. has always been a strong place to undertake clinical trials and you are able to do so without jumping through too many regulatory hurdles in order to kickstart a product in development. Asia-Pacific is coming into force as well. Their regulations have been harmonized and now you're at the point where you see different regions approving applications in parallel. Agencies are speaking to each other and there is lots of information being shared between them. Overall, yes, there is good, strong clinical research space but only time will tell.

This doesn't mean there isn't enough activity occurring in Europe, but when Worldwide is speaking to sponsor companies about Europe we understand the complexities involved in running multi-country clinical trials. Even though in the spirit of harmonization, it's supposed to be easy, each country is able to make their own decision.

I think COVID-19 is going to be a black swan moment in our space. Right now, we have cancelled conferences, changed the way we share information, et cetera. Are we going to get that upturn using virtual methods of engagement? I'm not sure yet; it's too early. It's difficult to speak about COVID-19's impact on the risk, development, and investment side of clinical research. With sites closing and limiting CRA visitation, there will be a slowdown. This year we are going to see a slowdown in the clinical research space in developing products. This may not be a tipping point to the transition to a virtual trial space, but it may lead us to hybrid trials. Every single day is changing, hour-to-hour. Financials aside, there will be an impact in terms of developing a product. The amount of time taken will slow down, but how much? How soon will we be able to pick that up? That all depends on how quickly we can get back to something close to normal and how early do we adopt a new and necessary paradigm. This is a true gamechanger.

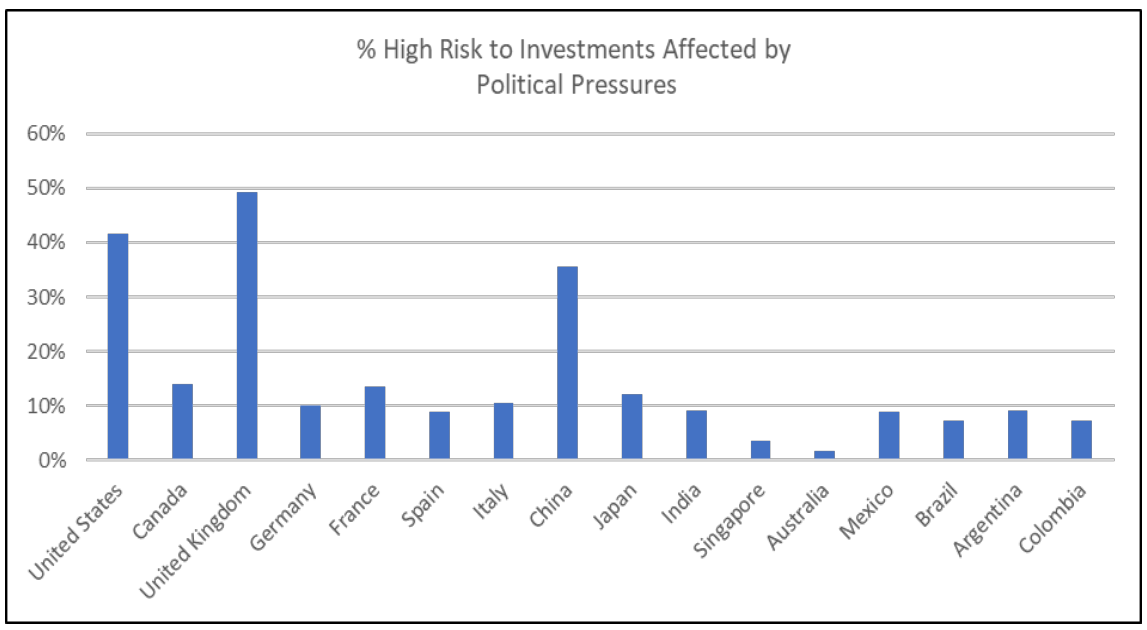
Moderator: As Darwin said, "It's not the strongest, nor the most intelligent, it's the ones who are most adaptable to change. In this case, the ones who are most accepting and will chose to adapt to this change. Those who come forward with innovative and novel processes in the way they handle both clinical development and the way they bring pharmaceutical products to market; the ones who know how to adapt to what is currently occurring will ultimately win. We don't know the severity of the impact of COVID-19, but we will see who will take the lead in the way we can do things different for the better.

Dan: From a commercial perspective and as it relates to strategy, COVID-19 could adversely impact the production of medicine, due to industry's reliance on APIs that come from China and the EU. Potential factory shutdowns lead to slowdowns in production which decreases supply. And, this would directly impact biopharma pricing. One big biopharma just announced that it expects a supply shortage to adversely impact its revenues. There are some large implications that need to be addressed across both clinical and commercial.

Moderator: Looking further at our third set of data, and where our respondents see the highest risks to invest based on perceived pollical pressures, there are three countries that stand out. The U.S., UK and China have the highest risk implications to investments due to political pressures. Can the panel speak to the potential political pressures that are going to cause this high risk around investments?

Effect of Economic Growth and Political Pressures

Graph: %Highly Risk to Investments Affected by Political Pressures



Insights:
Three countries stand out: US, UK and China as having High Risk to investments due to political pressures.

Dan: It's a hot potato when it comes to political pressures, specifically as it relates to pricing. Premature implementation of any aggressive government regulations would seem to significantly hamper biopharma innovation. It would make the sector less valuable from an investment perspective. If you make it less valuable, there will be a risk with capital shifting from biotech to other industries. With that being said, I am confident in our system in the U.S. and our ability to find common ground. Across stakeholders, there is a genuine focus on the patient. While it sometimes appears impossible to find common ground, we've seen time and time again that both sides ultimately do find a way to rally around the patient and find a way to get innovative medicines to them.

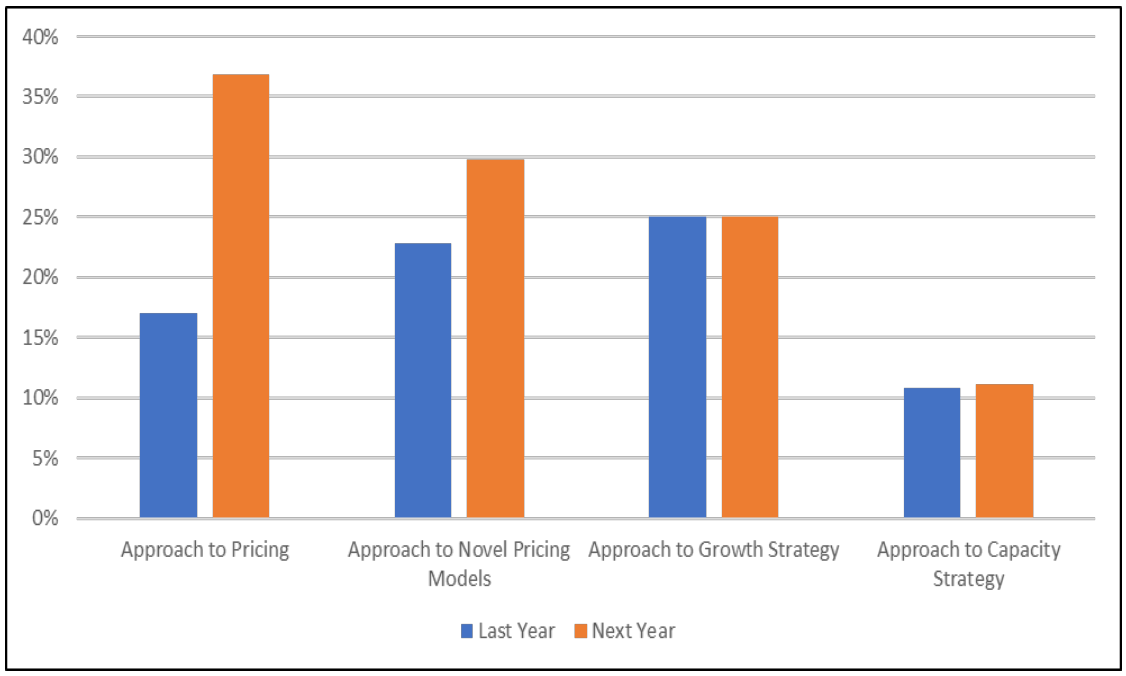
Tom: It's more of a perception. I remember when the first HIV drug came out and it was priced the way they would price anything else. There was a huge firestorm that ensued, and the company responded, "This is the way we've always done business. We're not price gouging." Price gouging is always going to be in, "the eye of the beholder," or whoever is running for election. You need to be cognizant and sensitive to that.

Moderator: We must take this in context of the current political landscape and the situation with Covid-19. Pharma could come out of this somewhat repairing their image and showing that the industry exists to serve the patient; or it could take another big black eye.

Moderator: In our fourth and final set of charted data and questions, we asked respondents had the political climate over the past year impacted their approach to specific business strategies and how would it impact the same business strategies moving into the next year. Business strategies including overall approach to pricing, novel pricing models, growth strategy and capacity strategy. We then broke down that information and looked specifically at their approach to pricing now segmented by key therapeutic indication areas. The major change seen in the data is all about the approach to pricing. We saw some change in price models, but responses were nearly flat across growth strategy and capacity. It seems to be all about the approach to pricing strategies. Is this a surprise to anyone on the panel and how do consultant and CRO's support these companies?

Political Climate Impacting:

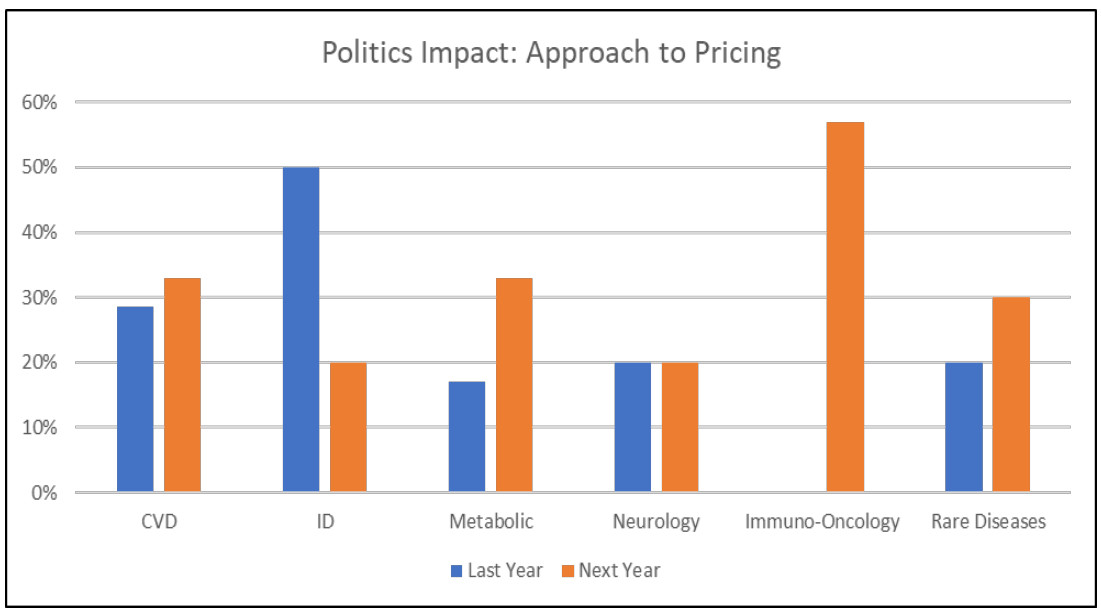
Graph: % High Impact of Political Climate on Biopharma planning for Last 12 Months and Next 12 Months.



Insights:
Major change in coming year is expected to be in the approach to pricing.

Political Climate Impacting:

Graph: % High Impact of Political Climate on Approach to Pricing planning for Last 12 Months and Next 12 Months.



Insights:
Conflicting expectations for Infectious Disease and for Metabolic Disease and especially Immuno-Oncology.

Dan: There is no doubt that it's a balancing act in Washington. On one hand, affordability must be addressed, but our government leaders need to prioritize the future for research-based pharma organizations. There have been efforts with price transparency, differential pricing, H.R. 3 bill, which all drive up anxiety levels across stakeholders. PhRMA conducted a study on the H.R. 3 bill showing an expected 90% reduction of medicine by small biotech if the bill is implemented, a more negative impact than the CBO estimated. While the House supports the bill, the Senate does not.

Aman: Region-specific drug pricing is a highly politically charged issue. The issue certainly emphasizes the importance of biopharma understanding the impacts of their products and enforcing drug pricing discussions with payers and appropriate authorities. I tend to ask, "How is this going to affect the patient?" With political impacts occurring, is the patient's voice lost? Or will it be more amplified? It really depends on the healthcare systems and to what country you are speaking. There could be a product that is approved in one region but not another. This scenario with COVID-19 is going to show how adaptable biopharma is and how quick authorities and governments must be. Time is precious for our population's health. You are being forced to take a step back and consider why you're in this industry. How can we make an impact?

Moderator: In our last chart of data, there is discrepancy in approaches to pricing as represented in the responses across the different therapeutic areas. Infections Disease stands out with how their approach to pricing resonated more last year versus the coming year, but it flips with Metabolic Disease. As we watch Immuno-Oncology products come to market, there is a huge spike in next year's expected approach to pricing. Do you have any knowledge regarding what is going on with Infectious Disease? What about Metabolic and Immuno-Oncology approaches to pricing?

Tom: The Infectious Disease result really surprised me. It seems that the past 12 months, Infectious Disease drugs had quite a bit of congressional noise around generic pricing. Additionally, there was some pricing model changes in Infectious Disease last year. Louisiana Medicaid negotiated a fixed annual fee for a generic drug. This may be why last year was a churning year in terms of pricing for Infectious Disease.

Aman: Immuno-Oncology is a rapidly growing space. There's going to be some changes. It does depend from country to country, but you have to account for what the patient population is and how large it is. What's happening in the U.S. is not the same as what's happening in Canada. Other countries tend to follow suit, but those major regions, U.S., EU, Asia-Pacific, and Latin-America, are the ones who push the agenda globally.

Moderator: Going back to the approach to pricing strategy, how does a CRO and Consultant help them navigate these waters?

Aman: For example, at Worldwide, we are looking at the development of a product. Not within a particular region, but at where the patient population is and what region would be most sympathetic and willing to help. How does Worldwide help? We are monitoring the landscape of that disease space and looking to competitor intelligence for that specific company to understand what the latest developments are. We look to see what a competitor could be doing, how you can add value, how your product can improve a treatment or indication, and what other products are currently in development. We don't want biopharma to wait until they are preparing for commercial launch. These conversations need to be happening in parallel to product development.

Dan: Regarding Immuno-Oncology and Gene Editing and Cell Therapies, this data is not surprising. There is broad recognition that much work is yet to be done, and our system is not set up for these enormous one-time payments.

If you break this down and look at it from a payer perspective, without long-term efficacy data, payers are going to struggle taking on the risk for these payments when they find out it may not be beneficial. When you think about employees and employer health plans, the average tenure of an employee is less than 5 year. Why would an employer (and payer) take on that first payment and pass along the benefits to the patient's next employer? These are some of the issues that our payers struggle with and look to biopharma for help. From a provider perspective in a hospital, timely delivery and reimbursement of blood transfusions has long since been a revenue contributor. With I-O as a potential alternative, much work is yet to be done to figure out how to manage these high-priced therapies. Accommodating these therapies is disruptive to healthcare economics.

There are some recent examples of company initiatives to help overcome the challenge. One approach is using installment plans. Novartis, Spark and Bluebird Bio have taking this approach. One company requests first year payments, but caps the remaining years to relieve the patient/payor burden for paying over the course of the entire treatment. Another company offers rebates if their drugs fail to deliver on their long-term efficacy promise. Consultants can add a lot of value here by helping to design payment plans and options that ultimately get these medicines to patients.

Moderator: I want to thank our panel for a lively and insightful discussion. I want to also thank everyone joining us today for our fifth and final Q1 2020 BCI panel discussion on **Sales and Marketing Concepts, Political Pressures, and Overarching Economic Effects**. These BCI panel discussions are brought to you by Kineticos Life Sciences and Worldwide Clinical Trials. Please join us next quarter for our release of the Q2 BCI Index.