

Shaping the Future of Healthcare

Disruptive Forces in Investing

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Anu Rajakumar: At the beginning of the COVID-19 crisis many were and still are fearful of what the future may hold for the global state of health. But now we're starting to see vaccine administration and distribution rolling out to key groups across the world. And as we record this podcast, we're in absolute awe of the pace of innovation that got us to a vaccine within a year of the outbreak. So, with that in mind today's episode will delve into how innovation plays a role in healthcare, and how it's transforming the sector today. My name is Anu Rajakumar. And today on Disruptive Forces I am delighted to be joined by Jeff Ferrell and Jeremy Lack, partners at Athyrium Capital Management, a specialized asset manager focusing on investment opportunities in the global healthcare sector. Gentlemen, thank you for joining me today.

Jeff Ferrell: Great to be here.

Jeremy Lack: Uh, thanks so much for having us.

Anu Rajakumar: Now, just to give our listeners some context, Athyrium has been one of Neuberger Berman's strategic partners in building structured investment portfolios across the healthcare sector for over a decade. So, to start us off Jeff, talk us through some of the key trends impacting the healthcare space that you think could allow for attractive investment opportunities, both in the US as well as outside the US.

Jeff Ferrell: So, as you mentioned we are a healthcare focused investment firm. And we focus on really the entire sector, so it's pharmaceutical, medical devices, diagnostics uh, and healthcare services, and really on commercial stage companies helping them to accelerate their growth. And I think that gives us a really good perspective on what's going on in the sector. One of the things that's really hard to get away from in healthcare is just the change in demographics that's going on globally, especially in the developed markets where you really have an aging of the population. By 2030, we're expecting there to be over 1.4 billion people globally who are over the age of 60, which is four times the number there was in 1980. And as we all know as you get older, you do tend to consume more healthcare. There is a second big global trend that's going on as well, which is you're seeing a significant increase in demand in the emerging markets for healthcare as wealth increases. As an example, China, this is a leader where healthcare costs have increased seven times over the past decade. Now this really is a double-edged sword. On the one hand there is lots of growth, which is, is really good. But on the other hand, it's not sustainable. I think we know that acutely in the US where healthcare costs are high and continue to grow every year faster than inflation. In 2019, in the U.S. we had over \$3.8 trillion in healthcare expenditures, which is just a very large increase over the last uh, couple of decades.

Jeremy Lack: Thanks Jeff, the demographic trends are critical for healthcare and are certainly driving a lot of increased costs. A couple other trends to highlight beyond just the demographics. First, we're now really starting to see a tremendous amount of scientific innovation reaching the market. And a lot of this really stems back to the sequencing of the human genome, back in 2000, and now, a couple decade ago. It did take a little bit longer than folks initially thought for a lot of the fruit of this labor to be commercialized. But now there are lots of examples of how these technologies and these innovations are kind of reaching the market. Around novel targets for oncology or for other disease states, novel modalities of how people are being treated. You know, the COVID vaccine being developed in less than a year is just a prime example of how this innovation is now starting to be commercialized. And you're really starting to see how these numbers are being borne out. The FDA approved about 50 new drug therapies each year over the past three years. This was only about 30 drugs a year about a decade ago.

Another important trend is the migration from fee for service to value-based care. Where healthcare providers and insurance companies are paid for the patient outcomes, not just the volume of healthcare tests and procedures consumed. This trend is transforming the US healthcare landscape. And a prime example of this is in Medicare where nearly 40 percent of Medicare beneficiaries, these are US citizens who are over the age of 65 in most cases. Uh, about 40 percent are on Medicare Advantage plans. That's 24 million people. Let me just briefly describe what an MA plan is. In an MA plan, the government pays insurance company a fixed premium to manage a population. The government also measures the outcomes across a series of metrics and additional awards are granted based on the quality of these outcomes. There are lots of different flavors

of these plans, but profit is only generated by these MA plans if they are able to manage the population to a lower cost than the regional benchmark while still achieving the important outcomes in terms of quality for the member populations. These incentives are now starting to really align appropriate care, not just more care. It might sound counterintuitive compared to other industries, but paying on quality of outcomes, not just the quantity consumed is somewhat revolutionary healthcare.

Anu Rajakumar: Yep, you made some good points about, you know, to changing, you know, the payment based on outcomes now. FDA approving drugs more quickly um, do you see these trends as permanent to the sector? Or temporary for sort of a, more like a regime until something better comes along?

Jeff Ferrell: So, I see innovation as really a permanent trend within the sector. You know, the technologies change over time as new discoveries are made. But there is always new things coming, and I really think back to the early 2000s with the Human Genome Project, which was trying to understand the genetic information of an individual, and think about, 20 years later with some of the innovations that are coming out of that. And are very useful therapeutically. It's KRSPR and some of the RNAi technologies, which are used to manipulate gene expression. Today we have targeted oncology drugs which are very efficacious and have very few side effects compared to more traditional chemotherapies. So, it's really about innovation and learnings, and then translating that into products that help people. One of the things the scientific community is really good at is sharing informations. There is a lot of cross sharing, cross borders, and publication in journals. And this really helps to, I think, accelerate some of the innovation uh, in the sector.

Jeremy Lack: Another trend that we do expect to continue is the increased costs of US healthcare spending. Ironically though it actually took a pandemic, a global pandemic, to reduce US healthcare expenditures. US healthcare expenditures are expected to drop about three to four percent in 2020. This is the first time there has been a drop in US healthcare spending in, in about 60 years if not more. Once again this is somewhat counterintuitive, but expensive elective procedures were canceled or deferred, hospital visits were down. The federal government had to actually pay billions of dollars to support the healthcare industry given the reduced volumes. Not all this was good thing though. While some unnecessary procedures and hospital visits were certainly avoided, many patients stopped getting critical preventative care. This is especially true in settings like dermatology, where in April there were sharp drop offs in procedures, over 60 percent. Of course, these did rebound to pre-COVID levels back in the Fall, as many people tried to make up their previously missed appointments. We do expect healthcare expenditures to continue to grow once more in 2021, and most likely to continue going on.

But the pandemic has accelerated the adoption of innovative technologies uh, and practices in value-based care in particular. Think about telemedicine. Telemedicine utilization has surged, both in terms of doctors offering telemedicine as well as patients using them. Nearly 90 percent of the ambulatory patients in the US who were treated in April were treated via telemedicine. Clearly these levels didn't continue, but there is no doubt there will be greater adoption of telemedicine going forward. And really importantly you're now starting to see that the government is reimbursing these visits. The pandemic also helped to emphasize the importance of primary care. Primary care commissions served as a frontline for treatment and prevention in this crisis. And primary care commissions have really been critical for the transition from fee for service to value-based care. We're really starting to see the trifecta of healthcare being achieved: providing greater access, improving outcomes, while reducing costs.

Anu Rajakumar: Yeah, I think you made some really good points there. This past year has certainly been an interesting almost experiment in how we can have different types of healthcare models. You know, you talked a little bit about the vaccine earlier on. So, let's dig in a bit there. It took a great deal of innovation across the globe to get us here, we talked about cross learning, global interaction. So, what do you think led to the success of turning the coronavirus vaccine around so quickly, really at unprecedented speed? And do you think that we're going to see that level of innovation in other areas of healthcare going forward?

Jeremy Lack: I do. Just to think about it, it's almost miraculous that we got a vaccine to market so safely and so quickly. I mean the sequence of the COVID virus was only first released in January. And by the end of the year there were two vaccines that were approved. This is remarkable and unprecedented. It wasn't that long ago where chicken eggs had to be used each year to make the annual flu vaccine. And even with an annual flu vaccine taking place uh, it still took nine months to produce it. So here is a situation where technology innovation really has accelerated the treatment of people. And it's really helped people dramatically across the globe. What I'm really curious to see is how these achievements will affect the public image of big pharma. Big pharma, as you probably know, has as very negative reputation, between the opioid crisis and extreme drug pricing. A lot of these negative views of the pharma industry are not unwarranted. But some of these scientific achievements reaching the market may change some of these perceptions over time. And you're starting to see an inclination of this taking place. Back in September 2019 there was a survey done, and 58 percent of those surveyed had a negative view of the pharma industry.

But a Gallup poll was done this September, and this dropped below 50 percent for the first time in a long time. And actually, 34 percent of those responded expressed a positive view.

Jeff Ferrell: And you know, another area of innovation that I'm, I'm really excited about um, is really what I see as the convergence between innovation and information technology. The technology sector and the life sciences space, as we know for decades now, there has been decreased costs of computing powers. Chips have gotten faster, and much smaller. At the same time in the life sciences space we've seen um, a decrease in the cost of sequencing. And what sequencing is, is it's really the ability for us to be able to take a look at an individual's genetic information. And as you lower the cost with that, you allow this to be applied more broadly. And now in my mind the convergence of these two trends, very large trends at the same time, create the opportunity for really a much more personalized approach to medicine. And it's a big change. So, you think as a cancer patient maybe years ago everyone would get chemotherapy. And we would base it on size of the tumor and tumor type. Today, we have the ability to really take a look at your genetic information that's very specific to the tumor that you have. Now potentially match you with patients who are very similar, and to take a look at how those patients did on various pharmaceutical treatments or other interventions. And try to match you now with something that kind of is a great fit for you individually. It's just a very, very big change, and I think we're still early in that. And I think it's becoming I think a lot more real for people. So, there are now services in the United States, one of them 23andMe, [or] Ancestry.com, but really allow an individual now to send in their genetic material. And have that sequenced. And have information again, still early as to how to apply all of that. And it, you know, it does raise, you know, privacy and some other ethics-related issues. But it is, you know, on the path to some really great innovations in the sector.

Anu Rajakumar: Yeah, I think so, good point to mention that, you know, challenges still, still are there in terms of some of the risks. But certainly, some exciting developments. Now, we previously talked a little bit about government support within the industry. Of course, we recently inaugurated a new president in the US. So now with the democrats in control of both the executive, and the legislative branches, even narrowly, what can we expect in the healthcare sector over the next few years, with that government regime shift in mind?

Jeremy Lack: Yes, it's a great question. A Biden Administration should be a net positive for healthcare overall for a few reasons. You know, first, we do expect a new COVID stimulus bill to be passed that's likely to be larger than would have been done under the previous administration. Second, we do expect more support for Medicaid and for large providers like hospital systems. We expect the Biden Administration to continue to bolster the Affordable Care Act. All these initiatives are likely to increase spending, perhaps dramatically increase spending in the healthcare space overall. At the same time even though we have a democrat in the White House, and the Democrats controlling congress, we are not expecting major reforms to take place, such as a single payer system. And the reason for that is it's a pretty thin majority, and that makes it very difficult to pass substantial legislation.

Jeff Ferrell: And I think, you know, one of the areas that Jeremy had talked about before was really how the pharmaceutical industry is perceived. And this, this ties into one of the other political issues, which is drug pricing reform, and how that might play out. As you know, many people know drug prices in the US are the highest in the world. And you know, that's always been an issue. So, I think that any talk to pricing reform could be a slight negative for the sector in the short term. But I think longer term, aligning price with the value delivered, is probably healthy for both the government and private healthcare plans that pay for healthcare, and the companies that invest in innovation. The generic industry represents about 90 percent of US pharmaceutical volume today. So, what we're really talking about is that other ten percent that are the branded drugs. Now they also happen to be the ones that are very innovative and are driving some of the innovation that we have talked about. So, I think that there needs to be a balance there. And then, you know, I think one of the other interesting things, maybe coming out of the pandemic, and hopefully one of the lessons, that I hope that we've learned is that from a public health point of view, we need to be better prepared for some of the challenges, which are there because some of them are obvious. And, if we wait until the problem is front and center, they're much more difficult to deal with. And, one of those that I really think about that, we all know is a "when not an if" type of problem is antibiotic resistance, which is coming and has been coming for a while. And is one of these things that will take time and lots of money to potentially deal with. And I think, you know, the likelihood of a solution within a year to that problem is probably much lower. I think in some ways we've gotten lucky with COVID in that with the innovation in the sector, you know, getting a vaccine to market within a year is, is almost a miracle. There are a lot of other you know, problems that have been much more difficult for us to deal with. I mean we think that we've spent decades now looking for an HIV vaccine. And while there are some very effective treatments at this point, we don't have a cure. And I think, one of the things that strikes me here is that some of these problems are just much harder than others. And that means there is still a lot to do here, you know, you think about Alzheimer's, and you know, um, certain kinds of cancer. I mean there is still a lot of kind of unmet need in the sector. And I think it's still a lot of opportunity for innovation going forward.

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- Anu Rajakumar:** Yep, I think that's a great place to wrap up today's conversation. You know, I think there has been incredible innovation in this in this space, and I think we can all share a hope for continued unity as we address the world's greatest health threats. Very interesting to hear about the next horizon of innovation healthcare. So Jeff, Jeremy, thank you both for joining me today.
- Jeff Ferrell:** Thank you very much.
- Jeremy Lack:** Thanks, Anu, it was a pleasure.
- Anu Rajakumar:** And to our listeners, if you have enjoyed this episode of Disruptive Forces you can subscribe to the show via Apple podcast, Google podcast, or Spotify. Or you can visit our website, www.NB.com/disruptiveforces where you can find previous episodes as well as more information about our firm and offerings.

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