Interview with Shreenal Ruparelia (Oxygen Hub, an initiative of the Institute for Transformative Technologies)

Ashley Hopkinson
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Ashley Hopkinson: Please start by introducing yourself and the problem you're looking to solve with Oxygen Hub. How do you see yourself solving that problem?

Shreenal Ruparelia: My name is Shreenal Ruparelia, and I'm the CEO of Oxygen Hub, based out of Nairobi, Kenya.

As the name says, we deal in the healthcare space, and we are trying to solve the problem around access to affordable and safe medical oxygen. I think this will strike a chord with a lot of people, especially given COVID-19 and its aftermath. But actually, this was a problem way before COVID-19, medical oxygen. Oxygen is an essential medicine. It's a medicine that's required at all stages of life, whether you have critical respiratory illnesses, whether you are a newborn, whether you are a pregnant woman giving birth; it affects all people from all walks of life. Essentially, it needs to be part of a hospital's arsenal of essential medicines. What's interesting about it is that it's not the only route for solving anyone's illness that comes into the hospital.

When someone presents themselves in an ER, clinicians will do blood tests, they'll look at various things, but the education and training levels in LMICs [low- or middle-income countries] do not always include checking blood oxygen levels as a first step, which ultimately determines how much and if a patients needs oxygen therapy to help them. As a result of lacking this step, we find that either a different diagnosis is made and/or patients die from ailments that are preventable with oxygen therapy. Often the patient has a condition or a preexisting condition, so oxygen is not a first line treatment. We want to increase the visibility of medical oxygen among clinicians by providing affordable access to LMICss, which will reduce the morbidity and mortality rates caused by the lack of oxygen therapy. Oxygen has lost the limelight that it needs and we don't want to wait for another pandemic for this to resurface again. The vision is to reduce morbidity and mortality by making medical oxygen and oxygen therapy accessible to patients that need it.

We started off with the mission to make this a really local solution in Africa. If you want to provide this equitably, it must be accessible to all types of healthcare – public, private, and faith-based systems located in rural, peri-urban, and urban areas – not just the ones that can afford it. And if you want to provide it to all patients, not just those who can afford it, it needs to stem from a localized perspective. You need to bring in the end customers you are trying to serve, which are healthcare facilities and patients in need. You have to take a more systems-wide approach, which means looking at the supply and demand. So that's really what our mission is; we're essentially creating a sustainable market for medical oxygen in Africa, which is nascent at present.

We currently work across three markets: in Nigeria, in Kenya, and in Ethiopia. We're working with local businesses that have had a track record of running their own companies. They're African-led, which is one of the unique value propositions we have. But it's difficult. We're essentially working in a very nascent industry, and it's painstaking sometimes. We do it that way because trying to build this market within the healthcare industry in LMICs is very complex. There are a number of players, and often resources at healthcare facilities are constrained. The public good at the end of the day is our belief system, so it has to have a localized approach.

We believe that this market creation has to be through the lens of long-term financial sustainability and self-reliance. Unlike short term emergency response towards COVID-19, the provision of medical oxygen can't be reliant on donor aid only. It was great having all the support that came from Global Fund, USAID [United States Agency for International Development], and others, to continue supplying [oxygen], but this has to be something that is locally born and serves the local market and need

By doing this, we can strengthen health systems in the countries that we work with. We have ambitions, of course, to extend, but we're very proud to say that we take the lens of that localized approach very seriously. We work with businesses and empower them to set up these facilities to produce medical oxygen, derisk their operations and distribute it, and we advise them on all the business and technical capabilities and just serve healthcare facilities as they need.

We don't have a centralized production and distribution facility. We operate a hub and spoke model, so we're closer to the needs of healthcare facilities, which allows us to minimize a lot of the end-to-end costs that build up for a health facility, and ultimately, for the patient who has to pay for the service.

It also allows us to aggregate the varying levels of demand that come from different-sized hospitals and healthcare facilities. That's how we work in all three markets. We've found that it's really helped in minimizing delays and ensuring that we're able to be very responsive and be able to price oxygen at or slightly below market price. Providing equitable and affordable access has

come quite feasibly as well with that approach. We're looking to accelerate that footprint and that methodology across Africa. Ultimately, the vision is [to reach a point where] we don't have to have an oxygen hub in Africa because there are businesses that can do this on their own, sustainably and so it can scale and expand. The dream is that there never needs to be an oxygen hub doing this in any LMIC countries.

Ashley Hopkinson: Who are the people you serve and how do you reach them?

Shreenal Ruparelia: We have to be quite nuanced, to be honest. Each market has a different style of approaching healthcare facilities. I'll give you a couple of examples. In Ethiopia, where we work, unfortunately, there's currently a war happening, and there are only a certain number of regions where we can work. We are still operating and serving hospitals there because they need it at this dire time. We have to use our brave local business partners to get to those public healthcare facilities because those relationships and those nuances are unique in Ethiopia. We have to build trust by ensuring that there's consistency in the supply.

In Kenya, it is a lot more free market in the sense that you've got a range of different types of healthcare facilities, from private to public to faith-based. We work through our local business partners for sure, but we are also actively speaking with public health officials and stakeholders at senior leadership levels on behalf of facilities that are run by local businesses in the market. That's because, as Oxygen Hub, we actually have stronger bargaining power than one facility would have working on their own. There's efficiency and economy of scale that we can bring in, so we leverage both approaches. We also support other wraparound services, or what we call demand generation. There is an unmet need, but now that COVID isn't there, it's just not converting to demand because again, healthcare facilities are often constrained in resources and have a very difficult decision-making process around what they procure and how much they pay, which is really unfortunate.

What we try to do there is help facilitate capacity building by conducting clinical trainings. Do clinicians understand how to administer medical oxygen to patients? How do you test for low blood oxygen levels? How do you switch on the cylinders because there's often a fear? Those technical capabilities are sometimes lacking, and unfortunately, the people who pay the price are the patients thus trainings help empower healthcare professionals

We are in a position to partner with others in the ecosystem or develop our own training. We've done so in Nigeria, for example, helping build that education at the health facility level, as local business partners are continuously supplying oxygen to them. We play a number of roles in downstream support and continue to do so, but we have to take a very nuanced approach because it's not a one-size-fits-all. Unmet needs and market dynamics are quite different.

We're learning through the process, but that's the end-to-end. We help the upstream in terms of procuring the equipment, negotiating production equipment from the suppliers, bringing it in, commissioning it, installing it, training the local business partners, ensuring they're following the SOPs [standard operating procedures], and also really giving them that end-to-end guidance on how to run their business. Then, whilst they are doing the distribution and the sales, we're also supporting the downstream. Frankly, that wasn't our approach initially, simply because we're of the belief that, as a local business partner, we have those relationships, and we wanted [those local businesses] to own them fully. But now that COVID demand isn't there, as you can see, shifts happen. It's not something that only they can solve for. I think it's a situation where we have to take that holistic approach.

Ashley Hopkinson: Outside of the training and the localized approach, is there anything else you would flag as something that makes you and what you're doing distinctive in the field of healthcare?

Shreenal Ruparelia: Yes. We are a uniquely-positioned social enterprise in that we provide end-to-end access to medical oxygen and create the demand generation activities around it. We're also the organization that's using this solution and thinking about financial sustainability. We have a goal to [achieve financial sustainability] by 2030. We now know the roadmap. The ambition is to be self-reliant as a business and to guide our local business partners and the other partners we work with to also be self-reliant. There are other folks who do this work in a different sense, but financial sustainability is still a very difficult concept to align with your impact. Often, one is at the cost of the other, and we're trying to balance the two. We do have a view and a vision around this, and we know what that's going to look like given our experience. We're quite critical in understanding what's working, what's not working, then adjusting and pivoting. I think we're very nimble in our approach in that sense.

I told you about the Africa-led bit, which is really important to us. We prioritize entrepreneurship through that process. What we are doing here is building capacity. We're building technical capabilities, and we're building business capabilities so these businesses can scale themselves. For us, the best case scenario is having 10 Ashleys that can do 1,000 oxygen facilities as opposed to a hundred Ashleys doing 10, for example. That's the economies of scale approach that we are taking, and we've leveraged that from models that have worked across the world. Finally, I think the way we are ultimately reaching patients and healthcare facilities is calling it oxygen-as-a-service, available as and when you need it through our 'hub and spoke model' ensuring that medical oxygen is equitable, and it is affordable. All the operational efficiencies we bring in, from the way we are set up, to the way we ensure that we've got the right site selection process and the right distribution mechanisms, gives the maximum impact and [most affordable] cost to the end patient.

It’s this hub and spoke model that brings in that oxygen as a service concept that doesn't constrain healthcare facilities too much. Those are, I would say, the three to four ways that we're distinctive in the way we're doing things currently.

Ashley Hopkinson: Can you share an example that illustrates the reach and deep significance of the work you're doing?

Shreenal Ruparelia: Sure, I've got a number of them. In Ethiopia, for example, we actually have one business partner, who we have scaled across regions because Ethiopia is quite spread out. She was actually one of our first local business partners. She founded a female-led teaching college, which is one of the first private-led teaching colleges, and she was training folks in her region, so she is well aware of some of the challenges that exist around the healthcare industry. This was a good opportunity for her to diversify and supply oxygen to that teaching college. They have a hospital there, so we set up a hospital-attached oxygen plant that ensures her patients and the trainees have access to medical oxygen. Then we have a section where we've also scaled her to Debre Markos, which is where the war is unfortunately happening.

I think that her facilities are the only oxygen plants in that region. To give you a sense of the size of the population we're talking about, it’s roughly 3 to 4 million people per region. Even if you reach 10% or 15% of that population, it's sizable impact. Right now, it's one of our largest producing markets, unfortunately, because of the war, but it is so critical because there's no other option in the region.People would've died without access to this oxygen. It's quite confronting when you take a step back and think about the sheer impact and need of what we're talking about. Ethiopia has a number of regions, including war-torn areas, and we’ve only covered two regions. We’re in conversations with the Ministry of Health through a PPP [Public-Private Partnership], which is something that we are really keen to accelerate, and we think that working closely with government stakeholders through partnership models will accelerate that reach. There are challenges that you face as an individual entrepreneur versus when you take a much more holistic regional or localized partnership with a local government.

In Nigeria's case, for example, we've actually worked with the government there. The NACA (National Agency for Control of AIDS) Nigerian government, which won a Global-Fund bid about two years ago, reached out to us. They’d heard about our work and they said, "Look, we want to be able to serve our states, our public healthcare facilities. Can you help us procure this, install it, and train us?" We managed to do it in record time. We've trained them. These are government stakeholders who are running plants in two states in Nigeria, and now we're in conversations around long-term maintenance. It's a value add across the value chain, and it's government stakeholders that aren't really in the business of production; they're in the business of procurement. Using our expertise and our knowledge, we're enhancing their local understanding

of how they should run this, providing support and guidance to them on the side, and building that long-term relationship, which I think is really effective because, through their distribution, they can now serve medical hospitals much better than even we could in those states, for example. And one of those states is up north, where there's a little bit of a challenge politically.

Then in Kenya, you've got individual entrepreneurs and original businesses that are pharmaceutical distribution, medical supplies, distribution businesses, nursing homes. Again, we're giving them an extension and de-risking them because the cost of capital to set up something like this in countries like Kenya is extremely expensive. De-risking them and giving them a leg up to set this up and create a competitive environment is important. We've been able to have a good mix of private and public healthcare facilities, and by doing so, we're currently able to supply medical oxygen in Kenya for $1 less than what everyone else is charging for supply.

The goal is building in those financial sustainability mechanics and bringing efficiencies into all of these businesses. There is a good opportunity for them to supply medical oxygen in a much more affordable way than what healthcare facilities are paying right now. These are just some of the nuances in terms of the market dynamics and what we're looking at, and really the balancing act that we have to play between thinking about financial sustainability from a business standpoint as well as from an impact standpoint. Anything we can do to bring in that self-reliance, whether it's by reaching more patients and healthcare facilities, or by ensuring that the businesses themselves are able to sustain their operations, ultimately builds out this community that requires medical oxygen.

Ashley Hopkinson: What I particularly liked about the approach that you were talking about is trying to expand the impact you can have by working through ministries and making some connective dots. The hub works.

Shreenal Ruparelia: It's challenging. This is probably one of the hardest industry I've ever worked in. It's not a one size fits all. It would be a very big mistake to assume that if it's worked in one country, [it will work the same way in other countries.] There are certainly elements of it that will work in other markets. I think this is what is exciting about the challenge. You're figuring out solutions in a very creative way that isn't short-term focused. It's not channeled on just one thing, it's looking [at the big picture] realistically. You have to have the energy and the appetite to see it through. That's also what makes it really difficult. There is a reason there are not many people doing this, but someone has to do it.

We don't see ourselves as the 1,000% profit guys. We see ourselves as a social enterprise that needs to be fiscally responsible. We believe we can actually get to those numbers with this approach. Our 10-year goal is to reach 3 million patients and save ~600.000 lives. You have 2000

children in Africa dying almost every day from pneumonia. These are preventable deaths. So it's a no-brainer, but it's also really challenging when you think about all the things that you have to contend with. And frankly, some things are out of our control. Some things are totally in our control, so again, back to the balancing point: it is a multipronged approach, and we have to be flexible in the way we approach these markets.

Ashley Hopkinson: Are there any insights or teachable lessons from doing this work that you could share, that someone else might benefit from?

Shreenal Ruparelia: We've only been in operation for two and a half years, but I feel like it's been a lifetime. I think the starting point is that in the healthcare industry, there are so many shifts, it's such a dynamic industry, and there are so many multilayer stakeholders, you have to be willing to adjust your approach. We went in with a certain view in 2021, and we walked out of it this year adjusting. We're very open to sharing some of the learnings and insights that have led to that.

The first is the flexibility to say it's okay that things aren't working out the way you envisioned, but there's a reason for that. The situation is informing you, and you need to be open to that. Sometimes, that can be a demotivating factor because it is hard work trying to shift all the different stakeholder mindsets on where all the investments are going. Yet at the end of the day, everyone's trying to do well in their own ways.

Certainly taking a holistic approach is important. When you're talking about a supply issue or a demand issue, you have to look at the other equation because, again, what I've discovered is that data availability is extremely challenging. While that may not be the case for malaria or HIV, it's certainly the case for medical oxygen. Getting access to informed data that allows you to determine the consumption levels in a specific state, see how much they are paying for it, and determine the procurement site is super convoluted. So you're not just working in a challenging industry, you're also working [blindly, at times, without clear guidance.] You need the yin to respond to the yang. For there to be a sizable impact, you need to look at it from those two angles.

The third part is you have to be willing to bring on others who might be able to do one or two of these things better than you. Partnerships are key, and we're being very upfront about that and very deliberate in our approach. We're not going in and saying, "We're the be-all, end-all." In fact, we're going to people and saying, "We have to do these things. Can you do them better than we can? We'd love to partner with you."

Of course with that, there are different political agendas, which is unfortunately also a problem in the health industry and the global health space in general. How do you influence some of those decisions? So number four is being very thoughtful about how our learnings and our work can

help others. One of the things I've been very pleased about seeing is that people are very open to sharing their learnings about what doesn't work and what does work, along with their ideas and connections. That's really encouraging and [helps us with] forming and normalizing these partnerships. Even though sometimes there are challenges working with certain stakeholders, it's always beneficial. Having a win-win situation is always beneficial and it will always help you go further faster than one learning.

The fifth one, I would say, is innovative financing and catalytic funding. I believe there will always be room for catalytic funding in LMIC countries because there are just some systemic challenges that no one alone can solve alone—not the private sector alone, not the public sector alone. It's going to take time and a combined effort between philanthropic, public and the private sector . To give you an example, shockingly, there are no medical cylinder manufacturers in any of the markets that we work in. We have to import cylinders (in situations where we need to utilize them), and unfortunately, that often costs seven times more than what you can sell them at. That's a systemic issue that Oxygen Hub alone, or a funder or a donor alone, will not be able to solve for. Does that mean you don't serve those markets? Someone has to do it. [We have to prioritize addressing] some of those systemic challenges and how catalytic funding can help the US businesses.

I think catalytic funding will always be able to nudge folks who are looking to prove something or pilot something to move a bit further and demonstrate viability. I think there's a space and room for that. More attention and sustained investments around things like medical oxygen are necessary. We have these very honest conversations with philanthropic foundations and others to say, "Just because COVID is over does not mean that we're out of the woods." It would be a shame if we had another pandemic and we were, again, looking for billions of dollars of investments in Africa. We need to think about this more long term. So my sixth learning is the importance of asking: How do we make sure that all these investments are sustainable?

Sustainability means a lot of different things, but whether you're supporting governments, local businesses, or programs, when that philanthropic funding dries out, what happens then? A lot of funding came in during COVID, which was great, but now there's a worry that some of this investment isn't going to sustain in the long run because we didn't think about the local capacity building. We didn't think about the fact that we needed maintenance services or spare parts. Maybe we need a bit more of a holistic approach, or maybe there are just too many NGOs, for example, that are providing free services that local businesses are not incentivized to set up. If you are distorting a market in the process of doing something good, without looking at it more long term, I think that is a shame.

We urge these conversations quite openly because we want these investments to go a long way. We're not looking to be duplicitous at all. We are very open in our approach to saying, "Well, if there's donor funding that's helpful to certain parts of Ethiopia, we don't have to do it. We're happy to help you guys and tell you what we've learned." Let's share knowledge and let's talk about that, but we don't have to have a leg up on anyone else. So there are these types of learnings, and I think we've had a lot of internal learnings, as well. Certainly, at a business level, this has also helped us tweak how we've approached local business partners. What are the support areas we have to give? Where do we have to strengthen ourselves? There are areas in which we have to [ask those questions], as a business, in our efforts to pivot.

Ashley Hopkinson: It's so important to talk about manufacturing and marketing as a part of the challenges that come up, especially when you're trying to serve across different markets in an industry like healthcare. It's an incredible difference financially to import something and to try to serve a market that needs it.

Shreenal Ruparelia: Yes, and to shed some light there, I had an interesting conversation with someone about one of the markets we operate in. I asked, "Why isn't there enough budget coming from governments to strengthen healthcare locally?" And he said to me, "Because it's not an income-generating industry." It's not like tourism. It's not agriculture, it's not food and beverage, it's not manufacturing. It's actually an expense-draining industry. You'll see a lot of agendas from a government level. There are oxygen roadmaps and all of that work is great, but where is the political will? I think that's a very important point that needs to be challenged because there's so much that external funders and donors and Oxygen Hub can do, but ultimately, governments must also take responsibility. When I pointed out that there are a lot of advantages, that if your population is healthy and well, your long-term implication is less in terms of simply having a better workforce, he said, "Those are all indirect advantages." It was just shocking to me and I realized, "Oh, God, yes, that conversation needs to change."

Ashley Hopkinson: Do you find that urgency bubbles up when there are health crises, like Zika, Ebola, swine flu, COVID, things that impact tourism and economies?

Shreenal Ruparelia: Yes. Emergency style response-wise, response is good, but it is a short term fix. I think our learning has been that we need to look at the long term. Especially now, with folks contending with climate change, it's even more important that healthcare industries get stronger. We have this debate all the time, where we've said, "Don't forget that there is a nexus between climate and health." If something happens from a climate shift perspective, guess which industry has to respond first? You'll have a downfall on all of the industries, that's true, but the first industry that's going to have to be ready to respond will be your healthcare industry.

I don't think there's enough understanding around what that looks like, or its gravity. It's concerning when we hear things like, "We're shifting, and we're building an industry." What we're doing, and what other folks are doing, is an infrastructure project. You are building something that isn't going to be consumed tomorrow and be forgotten like a packet of juice.

You need [that big holistic understanding] over and over again. It will show up in different ways, and you have to have it in your systems and your structures. That's something that's been a little bit challenging to hear, and we still have conversations around it. I think there is a mindset shift that needs to happen around the intricacies that exist between a climate challenge and a healthcare challenge, and [how we must start thinking] about them together.

Ashley Hopkinson: What have you found has worked really well for Oxygen Hub? How are you guys measuring success?

Shreenal Ruparelia: I'll break it down into three things. The first is that we've proven that setting up these facilities alongside local business partners and helping them set their own operation up works. Why does it work? Collectively, in two and a half years, these businesses have generated $1 million in revenue. So in two and a half years, you could split that three ways: $400,000 in Nigeria, $400,000 in Kenya, and $200,000 in Ethiopia. That is not something that they would've been able to do on their own, given the financial constraints and market barriers that exist. Facilitating that impact, as well as localizing their business and empowering them, has been a proof point that we're very proud of.

The second one is through that work, we've been able to reach over 500 healthcare facilities in these markets, which are a mix of public and private facilities. It's nowhere near our ambition of 3,000, but it's a step forward in the sense of understanding the processes, the structures and the needs of healthcare facilities.

That's allowed us to also be a bit creative in our approach. We're not just selling medical oxygen; we are piloting accessories for medical oxygen that a healthcare facility might need because a facility has numerous suppliers. Again, there could be resource challenges with procurement, so what we're trying to do is figure out what else they need. We're now getting asked for other gasses, as well as surgeries, surgical units, piped oxygen, clinical training, and other types of things. That's allowing us to be a little closer to the ground in terms of what the needs are. It's also giving us a sense of the long-term view in terms of other things we could develop and create.

The third thing is that through reaching these healthcare facilities, we've been able to reach around 60,000 to 70,000 patients. Our proxy on lives saved is about 10,000 patients. We've been able to successfully ensure that this medical oxygen is getting to patients who really need it.

There's a very deep understanding of that ecosystem and what's happening end-to-end, which has been great.

The final thing is just our speed of deployment. To give you a sense, in two and a half years, we have 16 facilities up and running. We have a 17th one coming at the end of the year. If you do the math, that's four to five facilities a year. These are actual factories we're talking about. We started doing it in the middle of COVID, remotely, so we're not messing in terms of our speed. We have an ambition to accelerate this in the next five to 10 years. I think we've been able to prove these points really successfully in how we've been able to operate, how we've been able to bring on board entrepreneurs, and ultimately, how we've been able to reach healthcare facilities and learn more about what they need so we can do what we want to do, which is make sure that patients never have to die unnecessarily from a lack of medical oxygen.

Ashley Hopkinson: I feel like every social entrepreneur who's running an organization learns as much from things that fail as from things that succeed. Have you implemented something or tried something that didn't work, or didn't meet the expectations you had? What were your insights gained?

Shreenal Ruparelia: There's been a number of them, but I think for us, this demand piece is so important. When we set up facilities, the different sizes of the facilities produce a certain number of meters cubed of medical oxygen, that are then supplied to healthcare facilities. Our estimations going in were based off of COVID because that's what we knew. There was no data, and now there's no COVID. Not that all facilities are like that, but there are some that we need to optimize. Right now, we are figuring out whether there is an opportunity to split the technology, where you attach it to another hospital. We can actually do this, and there have been some learnings around how we can capture the demand in one area.

Hospital-attached systems are often beneficial because they have the land to set up these facilities. You can pipe the oxygen if the infrastructure in the hospital allows for it, but nevertheless, you've always got a set amount of need that will be present in the hospital. Because it's a hospital, they know other hospitals as well, so you can supply [those hospitals through that relationship] versus setting it up independently. So in terms of how we've thought about site selection, we've learned to consider where we situate things, broadening our analysis beyond just the catchment area of healthcare facilities, and also looking at incidences of, for example, increased urbanization. Are there a lot of factories coming up in the area? Because that will exacerbate some form of respiratory challenges in that catchment area.

Working alongside distributors, for example, is also important. Nigeria is heavily governed by distributors in the medical oxygen supply space. Now, you can choose not to work with them,

which would be very difficult because it is tough to set up a distributorship in Nigeria. We're looking for ways to work with them. There are a number of instances where we went in with a certain demand sizing in our head and now we're like, "Okay, we need to figure this out," because it's also not fair to assume that the same levels will be hit. We need to think more creatively about how we split this technology. Do we move it somewhere else? Do we attach it to something else? Do we move it across the country? We've done some of those things already. How do we optimize our site selection? How do we work with the players that are strongest in the market to help efficiently distribute so we don't have to do it, because they are the experts in that region, not us?

We're chopping and changing a little bit of how we've done it before, and change takes time, but it's been quite successful. We've had good conversations, and we work with some distributors in Kenya alongside doing our own deliveries. We've split some of the plants from Kenya and moved them to Ethiopia, and we did one there last year, where we scaled. Now, we're looking to do a hospital-attached facility in Nigeria. These things are happening. We've been able to prove to ourselves that we can really work with speed, so we're taking things down a notch in terms of making sure that we're a little more measured in the way we are deploying these now. We're not pushed for an emergency, which at the time we were, with COVID. We're doing everything in a much more sustained and slower fashion so we can ensure that the demand is there when we set it up, and we don't end up having a lag in the process.

A lot of those learnings have helped us optimize the way we are thinking about our investments going forward. That's one lesson. The second is we're actually agnostic in the forms of technology that we are leveraging. I don't want to call that a unique value proposition yet because I think the mystery that folks have around Oxygen Hub is we're a technology solution provider [of a very specific product] called pressure swing absorption technology, or PSAs. It's common in Africa, but the only reason we went with that during COVID was it was the only form of technology that could allow us to move oxygen around in that hub and spoke model, and supply it to a range of healthcare facilities. You can't do that with other forms of technology as easily, and they're very costly. At the time, we went with that technology, but based on our learnings about set up and about built-in efficiency and sustainability, we're looking to use other forms of technology. Part of localization is it's not a one size fits all. We can't say that this technology is fit for every purpose everywhere. It has its drawbacks, too, so we need to be open to leveraging other forms of technology.

Ashley Hopkinson: Thank you for sharing that. We talked about how you are working toward systems change by taking a more holistic approach. Are you also working toward a more systematic approach of getting more oxygen to people when they need it?

Shreenal Ruparelia: Yes. I'd say advocacy. We're not trained advocacy experts, but we have successfully been able to engage relevant stakeholders. For example, in Kenya, they have a standard setting for medical oxygen. Based on what the WHO states, you need to administer anywhere between 90% to 93%/94% medical oxygen in terms of purity. Unfortunately, you'll find that in some of these cases, because they're supplied by other providers who weren't necessarily predominantly serving a medical market, they'll be offering 99% purity in healthcare facilities, which is dangerous. Where we can, we play a role in advocacy and bring others along. Our preference is to do this through partnerships. There are other folks that have got the muscle power, they've got the bandwidth, they've got the experts on the team that can play a very influential role in advocacy.

I think that's a very important piece of the value chain. A number of folks can influence that, so we look for those types of partnerships because it's not just about the client demand. We can and need to have an enabling environment. When your taxes come, [it's crucial to know things like,] are there any rebates that hospitals get.

Also, there are no local cylinder manufacturers [in our current markets]. What happens when you run out? Cylinders also have a shelf life. If you don't have standards around how you check for cylinders, you'll find hospitals using them for 10 years, which is really dangerous. [Advocacy is a] part of that market-shaping work that looks at not just the supply and demand, but at the enabling environment.

Ashley Hopkinson: You say you need other actors in this space to help accelerate systems change, and you mentioned political will. Is there anything else you can point to that could really move the needle on this?

Shreenal Ruparelia: I would like medical oxygen to have a home. It doesn't take COVID for you to realize you need medical oxygen. The same way HIV, TB, and malaria are known illnesses that need solving, and that people will be working on for 20, 30 years down the line, I want a synonymous understanding of how important and critical it is to have medical oxygen. Not having air, and seeing folks pass from something that is so easily available, is painful. There's no crazy innovation around it. It's ambient air. We're in it. It doesn't have to look for a reason to have a market and an industry.

It's something that we can solve easily if we just bring on stakeholders who are able to see this as a critical basic need. It has to be viewed as inexcusable if medical oxygen is not there. I feel like that will solve a lot of the challenges that exist around advocacy, around financing, around creating incentives for folks to enter this market. Right now, there are so few playing in this market

because there isn't an incentive around it. I wish that medical oxygen didn't have to fight for attention. It doesn't need a COVID [to be relevant].

Ashley Hopkinson: We've talked about challenges. What about funding?

Shreenal Ruparelia: As social entrepreneurs, we're always seeking funding to test and innovate solutions in risky environments, but it's beyond that. We need to say it is unacceptable that we, as a country, do not have enough medical oxygen and our citizens dying unnecessarily just cannot be tolerated. Because oxygen has not found its niche. It gets tagged onto other things. The use of medical oxygen is across 20 conditions : pneumonia, tuberculosis, malaria, advanced HIV, pregnancy, and surgery, COVID-19, trauma, emergency, critical care, pregnant women with obstetrics complications in respiratory distress (etc). First you need a reason, then you get a medical oxygen intervention, which is part of the problem. I think we can be a lot more reflective and creative around how to build an industry around this.

The truth is, if you look at the flip side of this equation, where else is oxygen used? It's used in the industrial market. A lot of our buildings, construction, and mining don't use medical grade, but they use industrial grade oxygen and other gasses. In that industry, it's a given that if we're going into this type of industrial manufacturing type of work and mining metals, we definitely need medical oxygen. It's a deal breaker if we don't have it. That understanding in that industry is quite strong. It's not the case in the healthcare industry, unfortunately.

This has also allowed us to open up new needs. For example, at-home care patients use medical oxygen, emergency ambulances are looking at medical oxygen. It's not just about the hospital itself. We need to look at the other periphery, emergency healthcare needs, [to identify] behaviors that people are demonstrating when it comes to healthcare, and determine how oxygen can plug in.

That's something that we're finding is a new "trend" that's coming up. A lot of the time, folks are open to getting oxygen delivered at home, and ambulances are looking at procuring it in larger quantities because people are moving away from urbanized areas, so emergency style types of ambulance care services are required. It's a growing market, in a sense. That's something that has been quite interesting for us to observe and see how we can actually serve those markets. But again, it's all part of market creation, and there's so much more opportunity here. It just requires that mind shift changes.

Ashley Hopkinson: This has been a wonderful conversation. Could you take a minute to share the next five-year goal for Oxygen Hub?

Shreenal Ruparelia: Over the next five years, we want to make sure we are well on our way on the path to financial sustainability, for ourselves as a business and also for our partners. We've expanded into a number of additional new markets in Sub-Saharan Africa. We're scaling our footprint and using technology-agnostic solutions. We're quadrupling our impact when it comes to serving healthcare facilities and their patients. Now, these numbers need to have an extra zero on the end. As I said, this is an infrastructure that we can use for other products and services that can meet the medical market. I don't see Oxygen Hub as just being Oxygen Hub. We can leverage these learnings onto other solutions that healthcare facilities need and save as many lives as possible. That's our five-year goal and beyond.

Ashley Hopkinson: Wonderful. Thank you for talking with me today.

Ashley Hopkinson is an award-winning journalist, newsroom entrepreneur and leader dedicated to excellent storytelling and mission-driven media. She currently manages the Solutions Insights Lab, an initiative of the Solutions Journalism Network. She is based in New Orleans, Louisiana.

** This interview has been edited and condensed.*