



## BHB Value Panel: A Discussion with Oxehealth

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**Behavioral Health Business:** We're really excited to have a chat here today with Katrin Engelmann from Oxehealth. Katrin, can you tell us a little bit about yourself and Oxehealth?

**Katrin Engelmann:** I've been with the company for more than five years, I joined before we had our first commercial deployments, and it's been a great journey of growth since. We're a company originated in the UK, we're working with about 50% of the Behavioral Health National Health Service (NHS) providers. It's been really a great journey of scaling up our operations.

We have to date supported more than 15 million hours in patient care. We're a software provider at the core, but a software that is enabled by an optical sensor that is being placed into an inpatient environment and is supporting clinicians to support safer, higher quality, and more efficient care. We do this with a variety of different components that come together in the software, but what they're most famous for is the part of our solution that is medically cleared by the U.S. Food and Drug Administration (FDA), and that has the ability to take pulse rate and breathing rate measurements of a patient in their room in a way that is completely contact-free.

The way it works is similar to photoplethysmography, which measures micro-blushes in a patient's skin from which we can derive a heart rate, and the sensor is able to pick that up at distance.

We're the only company worldwide with a clearance for that, and then we're also providing clinicians other actionable data to improve the care, such as activity and location based alerts and warnings.

We are currently working within behavioral health, within nursing facilities, within prison, jail environments.

**BHB:** That's fascinating, all the different areas that you all touch in terms of providing this technology. Today, we're here to talk about value-based care. Tell us about some of the work that your organization has done in terms of delivering outcomes using this technology.

**Engelmann:** For us, it's all about improving safety, quality, and efficiency of care. We internally have teams, so whenever we do implementations at our customer sites within the hospital in inpatient settings, we're actually measuring the clinical, operational, and financial outcomes. That's really one of the core components of everything that we're doing, it is vitally important for our partners and for us to really understand and measure the tangible impact of deploying Oxevision.

Now, we have a lot of studies for that reason, and I just want to cite some examples to bring that really to life for you all. Within a senior inpatient environment, for example, looking at the patient benefits, providers have shown a 48% reduction in falls within the inpatient environment, and a 68% reduction in transfers to acute. Our partners have also reported an 82% reduction in harmful falls, which is of course really important to reduce the number of incidents within those environments.

How does it all come through from a provider perspective? They've demonstrated a 71% reduction in sitter hours, so it really comes through here as a direct cost savings.

Now, for the acute behavioral health environment, where of course providers are struggling in trying to prevent self-harm incidents, suicides, and so forth. We have data that shows a 44% reduction in self-harm incidents in the bedroom environment and a 66% reduction within bathroom ligatures, within the female acute settings.

In the UK, we see that particularly that population is really prone to self-harm incidents within the bathroom environment, and that all contributes to safer care. We've seen, for example, that not only the sitter hours are being reduced but also staffing efficiencies are created, which are really impactful in terms of the bottom line to the providers.

**BHB:** Looking ahead, and focusing on that patient experience, can you tell us a little bit about how patients have reacted to the technology in the UK?

**Engelmann:** It's interesting, I was in Oxford, one of the first providers that we implemented our solution in, and I was speaking with the Chief Nurse there, and she was sort of pointing out, "Look, nursing hasn't really changed since this building was built."

I was thinking, “It’s an old Victorian building, when was that? Well, yes, 1847.” You can see, within an inpatient environment, so much is being done to protect and really safeguard the patient’s safety in those environments, but nursing practices haven’t changed. It’s still the Q15 rounds, having to go from room to room, checking on the safety of the patient.

That is a very manual, labor-consuming process, and what do you get in terms of the information? “Well, the patient looks safe to me, I can see that they’re breathing. Possibly at night, it’s difficult to obtain that information.” You probably all are aware of the practices that are really upheld, going from room to room, looking through the hatch, maybe shining a flashlight, trying to see that sign of life, but that’s not helping the patient who’s trying to recover, really doing something good for their well-being.

What we’re enabling providers and nurses to do is to take digital safety checks, so instead of going from room to room at night, they’re able to take through a touchscreen, through a handheld device, pulse rate and breathing rate observations. As I repeat, there’s nothing that touches the patient, so they can sleep really in all peace and really have that good night’s sleep, which is so important in their recovery.

The nurses get information on how they’re actually doing, so getting pulse rate, breathing information, as well as activity reports information, which is really crucial to understand how they’re supposed to be treated in a really good way. We also had a call last week into our office actually from a patient, and he was like, “Well, you know what? I’m in this environment right now in this hospital, and last time I was at this other hospital, and I actually slept really well because of your solution, so please could you put this solution in so that I can have a good night’s sleep, I have peace of mind with this being in the facility?”

Of course, we have conversations with their provider as well, but we have done quite a number of surveys with the patients as well, and we really get the feedback that two-thirds feel that they’re more secure within these environments, feel greater peace of mind and really being taken care of a lot better.

**BHB:** One of the trends that goes across the care continuum is obviously the challenges in workforce staffing. Previously, you shared some amazing statistics in terms of the improvements in the efficiency of the workforce based upon this solution. Tell us a little bit about that.

**Engelmann:** It is related to the practices and really how we’re enabling clinicians and nurses and the providers to change the way they work. We see from surveys that we’ve done that 92% of staff actually say that they feel less stressed with our solution being in place, and 91% feel greater peace of mind really knowing and feeling that the patients’ risks are better managed, which is of course crucial in those environments.

What they're also able to do is, because they have additional information and clinical insights available, actually they feel empowered to be able to take better care decisions and really support patient care and actually free up their time away from the routine task of actually taking observations to that quality treatment that actually really is within the core of what they want to focus on.

We have a few really good anecdotes coming in from our providers that we work with, where they're actually saying, "Hey, we know that staffing is an issue. We struggle with retention and getting staff into our facilities," but there were numerous examples of nurses actually saying, "Hey, I want to work within your environment, within your pathways because you have the system in place, it really sets up patient safety, and that's what is really core to what I want to do." Also, within nursing home environments, we see there's operators that want to come in to really support the novel work that we're doing and really drive that.

**BHB:** One of the questions that's come in has been about consent and privacy. The UK has a somewhat different view of privacy than we do here in the States. Tell us a little bit about the privacy platform behind the solution.

**Engelmann:** It's at the core of everything that we're doing. First of all, a key component to say, we are HIPAA compliant, and in Europe, we are GDPR compliant. That's really the number one thing that I want to bring across. Then, going back to what I just outlined, looking at the old Victorian practices to go from room to room, really disrupting patient dignity, their privacy.

We know that the patient-staff relationship is oftentimes also quite negatively impacted by these routine checks that need to be taking place, and we all know I think in regular life, once we are woken up once or twice per night, how that impacts ourselves the next day. From a patient's perspective, actually having that good night's sleep and feeling that the aid is on the patient, they're really feeling supported, and we get that in through feedback all the time. That's I think a core component here.

The other thing to mention around that as well is that it's an optical sensor, but the way the system is used is most of it is focused on non-personal data. The way that nurses interact with our solution is through a screen, and that is more like a traffic light system. They see orange, green, red.

They receive alerts through that, and there's only very few instances which are very controlled where video data is available, and that core, one instance where it's available is as part of the FDA-cleared process on obtaining a pulse rate and a breathing rate measurement, because the process is very similar to a nurse today taking a pulse rate, breathing rate measurement, you have to go into the room, you have to lay eyes on the patients and you need to ensure that the breathing and the pulse rate measurement is actually from that patient.

That's how we're really running and setting up our solutions. It's really safeguarding that patient privacy aspect and enabling that and then actually improving that.

**BHB:** To bring it full circle back, we talked a lot about value-based care this morning. How does that translate in terms of some of the return on investment metrics you've established with your partners such as the NHS?

**Engelmann:** Safety, quality, and efficiency of care, it's at the core of how we're actually designing our solution, and we're digitizing a lot of clinical moments that actually improve and further enhance that over time. There's a lot of innovations that we're developing and working on, but what we have internally is actually a team, as I mentioned prior, that is really in charge of measuring the clinical, operational, and financial outcomes that our solution really provides.

There was an independent health economics study that was conducted in the UK based on all the data that we have from our providers, and it has shown that for every pound invested, on average, providers have a £3.64 (\$4.45) return of investment. Now, most providers, and there's differences on the settings, different pathways, of course, we'll have slightly different return of investment, but most providers have a positive return of investment in the first year.

**BHB:** Tell us what you're looking for in a U.S. partnership.

**Engelmann:** In the UK, we're working with about 50% of the NHS Behavioral Health providers, and that has been a fantastic growth story which we're really proud of. As we're entering the American market, we're really hoping to partner with like-minded organizations that are really forward-thinking and really have the same vision in mind of looking at improved safety, quality, and efficiency of care. Anyone here in the audience that would like to have conversations with me about that and how we can help and what's in store in the future, I'd really appreciate that.

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*Oxehealth is a global leader in vision-based patient monitoring and management systems, helping clinicians to deliver safe, higher quality and more efficient care. To learn more visit: [www.oxehealth.com](http://www.oxehealth.com).*