

## Do You See What I See? Smart Glasses in Healthcare

In the latest iteration of telehealth innovations, smart glasses, “a very small, lightweight wearable computer with a transparent display that brings information into your line of sight,”<sup>1</sup> are being paired with telehealth conferencing software to create a combined product that may significantly change the delivery of healthcare going forward. This product is envisioned to be utilized in a variety of settings and scenarios, including:

- (1) For academic purposes, e.g., projecting on a screen for students exactly what a physician is seeing as she is performing an operation;<sup>2</sup>
- (2) Remote training on diagnostic imaging technology;<sup>3</sup>
- (3) Remote training on routine procedures (such as inserting IVs);<sup>4</sup>
- (4) Remote guidance and instruction with a specialist, wherein an onsite provider wearing the glasses would be guided by the offsite provider who could see exactly what the onsite provider was seeing, from their perspective, and the onsite provider’s hands would be free to carry out those instructions;<sup>5</sup> and,
- (5) Remote scribing in the physician’s office, wherein an offsite provider documents the patient visit while the onsite provider focuses on the patient in front of them.<sup>6</sup>

A number of companies have collaborated on various endeavors to bring such innovations to fruition. Arguably the most notable brand of smart glasses, Google Glass (now simply known as Glass) unveiled the latest iteration of its technology in 2017, Glass Enterprise Edition, after the initial version failed to take hold in the consumer space.<sup>7</sup> The product allows users to “[a]ccess training videos, images annotated with instructions, or quality assurance checklists that help you get the job done, safely, quickly and to a higher standard.”<sup>8</sup> Glass’s healthcare customers include a number of notable health systems, including CHI Health, Christiana Care Health System, Dignity Health, Eastern Maine Medicine Center, Sutter Health, TriHealth, and Trinity Health.<sup>9</sup>

In some cases, Glass has paired its product with Augmedix (a medical device startup affiliated with Glass) to allow for remote scribing (as detailed in the above list).<sup>10</sup> Those healthcare clients that have utilized this product have realized a significant gain in the amount of time that they subsequently have available, with providers now spending


less than 10% of their working day on administrative work such as appointment notes (down from 33%).<sup>11</sup> Another Glass collaboration, with swyMed (a telemedicine software company), allows for remote visits and monitoring, for example, by dispatching a nursing/medical student (wearing Glass) to the home of a recently discharged patient or a patient with chronic conditions, with the physician assessing that patient remotely.<sup>12</sup> This collaboration may serve to ameliorate physician manpower shortages by allowing a physician to be in two places at once (literally and figuratively).<sup>13</sup>

Outside of the Glass joint ventures, Vuzix Corporation, which makes smart glasses (among other augmented reality products), and VSee, a video telehealth company, have combined to “create a smart glasses telemedicine solution” utilizing Vuzix’s smart glasses.<sup>14</sup> Although Vuzix’s and VSee’s products were already available separately, the companies anticipate that this combined product will facilitate a number of opportunities related to training, education, and virtual care, allowing offsite specialists to provide remote guidance and instruction to onsite providers.<sup>15</sup> VSee already services a plethora of healthcare clients, including Ascension, Sutter Health, Healthcare Partners, Walgreens, and MDLIVE,<sup>16</sup> which clients will likely have a strong interest in this new telehealth product.

Smart glasses are not only being utilized by healthcare providers, but also by their patients. For example, a recent study published in *JAMA Pediatrics* found that children with autism spectrum disorder (ASD) who used Glass with Superpower Glass, a “social learning aid for children with ASD to encourage facial engagement and provide feedback to the child during social interactions at home,” showed a “significant improvement in socialization.”<sup>17</sup>

Over the next few years, the smart glasses market “is projected to witness a rapid growth.”<sup>18</sup> This technology may serve to solve a number of current issues in the healthcare delivery system, including ameliorating the physician manpower shortage and physician distribution problems (ultimately increasing patient access through virtual care), increasing safety and reducing errors, and decreasing training time.<sup>19</sup> While the ultimate reach of these smart glasses innovations is still being determined, it appears from its growth to date, and the number of companies and collaborations offering such solutions, that this technology is not a passing phase, and may ultimately transform the healthcare industry.

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