In March, Omnicom Health Group attended SXSW 2017, which is one of the largest, most renowned interactive global conferences in the world! SXSW offers an abundance of information about the latest innovations in healthcare and medtech.

Among all of the impressive new companies, technologies, and ideas at SXSW, four major medtech trends rose to the top:

1. Artificial Intelligence
2. Wearables
3. Virtual Reality
4. Data, Data, Data

All of these trends are interconnected and have the potential to change the future of the healthcare industry greatly. Let us know what you think at: technology@omnicomhealthgroup.com
The most prominent theme at SXSW 2017 was the future of artificial intelligence (AI). Artificial intelligence is when computer systems learn to perform tasks that normally require human intelligence. Examples of AI include speech recognition, understanding visuals, and decision-making.

Many applications of AI were exhibited at SXSW Interactive including:

- **How AI Is Changing Search**
- **The Intersection of Human Intelligence and AI**
- **Automated Assistants**
- **Voice Recognition Technology**
- **The Rise of the Chatbot**

**AI will now be competing with, and even replacing, search** for customer acquisition. It remains to be seen how exactly traditional SEO will be affected, but it is likely that as AI becomes more advanced, we will use search engines less, and move to more intelligent and personalized systems to acquire information.

From an ethical standpoint, the **intersection of human intelligence and artificial intelligence** was debated at the conference. AI and automation will increasingly put pressure on humans to differentiate. As cognitive technologies advance, we will have to ask ourselves how to approach AI in a way that benefits all humans and how to teach AI to operate without human biases.
It is not just about AI, but rather the combination of human and artificial intelligence that will define humanity’s future. Ginny Rometty, the CEO of IBM, noted that artificial intelligence should be called augmented intelligence to reflect the importance of the human in the decision-making processes of AI.

Though AI may sound exciting or scary, it was emphasized that it is always the case with new technologies. There are many opportunities to use AI for the greater good and help us improve as humans. There was a consensus that we need to get better as a species at solving complex problems—and AI can help us achieve this, especially in healthcare.

Another major way AI could change healthcare is through the use of automated assistants. The automated assistant is likely to be the next big interaction in healthcare. Virtual health assistants can offer on-demand personalized care and allow for new kinds of monitoring to help caregivers. This will be aided by advancements in voice recognition technology (VRT), such as Amazon Alexa/Echo and Google Home. VRT has completely changed how we integrate information into our lives. Five years ago, for example, nobody would think about speaking to an app as part of user experience. As a screenless, voice-activated interface, voice recognition creates new possibilities for patients previously unable to physically or visually use screen-based technologies. An incredible example of this is Microsoft’s Seeing AI project, which includes an app and glasses for the blind that scans a person’s surroundings to indicate people around them and their approximate emotional state. It also reads menus or signs aloud that are not available in braille.
The rise of the chatbot was another important theme at SXSW 2017 and is closely tied to AI and automated assistants. A chatbot models how humans work and is a natural type of engagement. People are accustomed to messaging as a form of one-on-one interaction and it has been shown that people interact with chatbots for an average of about 2 to 3 minutes, which is significantly longer than a typical user’s engagement with reading a social post. Proof of this natural type of interaction is that people often bring human conversational elements into messages with chatbots by saying “sorry” after a delay in texting back, “thank you,” and even wishing bots happy holidays.

Chatbots are best used when they can shorten the time and distance between a person and what they want from a company or brand. Asher Rapkin from Facebook Messenger explained, however, that currently 70% of Facebook chatbots are not meeting the needs of consumers. As a result, the chatbot needs be faster than any other platform to reach the desired information. If it is not, then something automated is, perhaps, not the correct approach for a brand. Still, chatbots provide a great opportunity to connect with consumers in a new way, especially when they’re integrated into an existing platform like Facebook Messenger. Messenger already has 60 million companies on Facebook and is one of the first mediums that has an intact audience. Using a chatbot could not replace the patient-physician relationship, but it could be used to enhance a digital healthcare experience with specific tasks such as medication reminders, symptom checkers, and checking prescription facts in an easier way than currently exists.

Marketers can think about measuring the effectiveness of a chatbot by unique users’ repeat visits, having a user rate the experience after a chat, and tracking user sentiment—which cannot always be analyzed on websites.
SXSW 2017 Interactive Trends

Further Reading

Elon Musk launches Neuralink, a venture to merge the human brain with AI

Microsoft Cognitive Services: Introducing the Seeing AI project

3 Lessons learned by building my healthcare chatbot: be patient, don’t give up, and always be learning
At SXSW 2017, we continued to explore the applications of wearables in healthcare and fitness. There was an emphasis on the importance of:

- **Measurement Accuracy**: As wearables become more ubiquitous, it is important that they are used in research studies and that accuracy improves. Jeff Knight of Under Armour explained that 58% of nonwearable owners would consider using wearables if they trusted the accuracy of data, and 27% of owners stopped using them because of accuracy concerns. Without reliable and accurate information pulled from wearables, we can’t tell if outlying data shows problems in measurement error or actually shows underlying biological differences.

- **Data Insights Over Tracking**: Tracking alone is losing steam. Consumers want more. The next big move for wearables will show the data insights that devices provide. Wearables already collecting data, for example, this is the first time in history that someone can collect three years of heart-monitor tracking. Insights we can get from this data are yet to be determined, especially as the healthy adults who use wearables age.

- **Encouraging a Seamless Experience**

- **Hearables**

**Tracking alone is losing steam**. Consumers want more. The next big move for wearables will show the **data insights** that devices provide. Wearables already collecting data, for example, this is the first time in history that someone can collect three years of heart-monitor tracking. Insights we can get from this data are yet to be determined, especially as the healthy adults who use wearables age.
Wearables also allow us to note differences in self-reported and objective data. An example is meeting recommended exercise guidelines. When patients self-report their daily exercise, around 30% to 40% of Americans reach the recommendations, but with consumer wearable data, we see the number is closer to only 5%.

Using a wearable should be a **seamless experience**. We used to think data and technology were “add-ons” to our lives, but now the experiences are so well integrated, they’re a normal part of our experiences. Google and Levi’s Project Jacquard is a good example of this. Consumers do not even realize they are wearing a wearable, but reap the benefits of Bluetooth-connected threads in their clothing that can control basic smartphone functions.

Closely connected to the AI and VRT themes, **hearables** were often discussed in the context of wearables. Hearables are defined in multiple ways to include everything from cochlear implants, to smart headphones, and Amazon Alexa. As the expectation of hands-free control over our environment via VRT increases, hearables are predicted to be a $40 billion market by 2020. The introduction of mediated listening and hearables could also be the end of privacy as we know it. Capturing our conversations is a powerful part of hearables, but is also a regulatory challenge. When used for specific cases, however, hearables have amazing applications in healthcare.
Further Reading

Google and Levi’s Project Jacquard jacket has restored my faith in wearables

Are hearables the new wearables?

Accuracy should be a priority for wearable tech according to survey
SXSW has become known as one of the leading conferences to show the latest and greatest in virtual reality (VR) applied to healthcare. This year, we saw:

Advocating VR in Hospitals
Virtual Experiences for Education

At SXSW we were reminded that a hospital is not a place just to be sick. It’s a place to heal, and a place where people live. The distraction, joy, and momentary relief that VR can provide a patient should not be underestimated.

C.S. Mott Children’s Hospital in Ann Arbor, Michigan, described how using VR has positively affected their young patients’ lives. For example, a boy named Blake who suffers from sickle cell anemia reduced his pain score by 3 points when using VR. When he arrived, he described a pain score of 9, but while experiencing VR, he described his pain score as a 6. VR and its profound neurological effects have yet to be defined, but we do know from MRIs that the brain lights up the same areas as opioids when patients experience VR.

Similar to VR, music-assisted therapy has been shown to have positive effects on patients for pain management. In a panel with TBWA\WorldHealth, we learned about The Gate Theory of Pain. This theory states that nonpainful input closes the “gates” to painful input. When these gates are closed, the pain sensation is blocked from traveling to the central nervous system. Therefore, stimulation by distractions such as VR or music is able to suppress pain.
Another incredible use of VR in hospitals was seen in an April 2016 study by Duke University. Eight paraplegic individuals used an exoskeleton and VR therapy. Once the study was completed, over half had their diagnoses improved to partial paralysis, which was an undreamed of situation. These studies and patient experiences show how VR can be a great extra tool for hospitals to employ.

VR also had incredible applicability in healthcare education. Unlike real life, VR allows a user to pause and create a teaching moment or ask questions, while still experiencing a life-like scenario. At the SXSW trade show, we saw how surgeons are using augmented reality, in addition to VR, to get a better look at a patient’s anatomy prior to surgery. A company named Holoeyes uses Hololens during surgery to describe procedures to other doctors with a visual. Similarly, Fujitsu’s 3D heart simulator provides a virtual heart specific to a patient who needs heart surgery. Prior to the actual surgery, a doctor can perform a virtual surgery on the virtual heart. The virtual version allows the doctor to check results of an actual surgery via the virtual surgery.
Kids in the hospital use the HTC Vive virtual reality system

Virtual reality with real health outcomes

Robo-suit and virtual reality reverse some paralysis in people with spinal cord injuries

World 1st hololens AR surgery holographic augmented reality navigation
At SXSW there was both frustration and excitement around healthcare data. Never before have we been able to gather such a vast amount of data. Three areas of interest around data were:

- **Open and Accessible Data**
- **Electronic Health Record Data**
- **Building Partnerships**

Collecting data used to be limited to technology companies, but now all types of companies are leveraging data and feedback loops to enhance our everyday lives. However, moving from big data to actionable data, especially within healthcare, is not easy. A major point of discussion at SXSW was **open and accessible data**.

There was also a call to action to improve antiquated ways of dealing with **electronic health record (EHR) data**. In 1968, Dr. Lawrence Weed published an article in the New England Journal of Medicine on the problem-oriented medical record in which he voiced many of the same concerns doctors share today. The many suggested changes to the EHR at SXSW include the need to digitize the record experience, establish a shared language, create a business case for interoperability of data and systems, and unify the approach to patient authorization to share data. It was debated if the patient actually wants or needs the raw data in their EHR or if they really want the insights that the data provides about their health. Regardless, patients need to be more empowered to have control over their health data to inform health choices as counseled by their physician.
The CEOs of Johnson & Johnson and IBM led a joint panel in which they discussed how data will be at the center of solving many healthcare issues. They stressed the importance of building partnerships and incorporating new ways of digitizing data. IBM CEO Ginni Rometty said, “Healthcare is a problem that you can’t solve alone.” She went on to assert that a strong public cloud would make healthcare data more—not less—safe. There must be “analytics systems” to watch over this public cloud like an immune system. Finally, she argued that the data owner should be the one responsible for data insights. Her approach to open and actionable data was echoed throughout SXSW 2017.
Conclusion

SXSW 2017 offered incredible insights to artificial intelligence, wearables, virtual reality, and data. These trends are often interconnected and have great application in healthcare for our clients, patients, and healthcare providers.

Special thanks to Omnicom Health Group agencies Patients & Purpose, DDB Health, CDM Princeton, TBWA\WorldHealth, CDM New York, CDM London, and Entrée Health Princeton for their attendance and contributions.

To learn more about any of these trends contact: technology@omnicomhealthgroup.com