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**Update on the Current State of Wearable Technologies:  
Considerations and Implications for Workers' Compensation**

**I. Overview of the Current State of Wearable Technology**

**Wearable Devices Marketplace**

It seems as though everywhere you turn people are talking about wearables. They are in news, and all over the internet. Many advertisements and articles preach the benefits of wearables and predicting that this new wave of technology will become the next big rage. Most common wearables include fitness trackers, wearable cameras, virtual or augmented visual eyewear, and watches, wristbands and jewelry. *Forbes* recently reported that one business analytics firm predicted that wearables will become a \$34 billion Market by 2020, with 400 million units sold.

There is some speculation that the recent explosive growth of wearable devices is a result of smartphones which have been so transformative because of their compact size and their connectivity? As with smartphones, we have seen continued rapid advancement in smaller, faster microprocessors, compact battery power, wireless communication, virtual reality among other reasons.

Wearable devices typically have three common categories of devices.

- A *sensor* is a device that detects and responds to some type of input from the physical environment. The specific input could be light, heat, motion, moisture, pressure, or any one of a great number of other environmental phenomena.
- A *microprocessor*, sometimes called a logic chip, is a computer processor on a microchip. The *microprocessor* contains all, or most of, the central processing unit (CPU) functions and is the "engine" that goes into motion when you turn your computer on.
- A *transmitter* is an electronic device used in telecommunications to produce radio waves in order to transmit or send data with the aid of an antenna. The *transmitter* is able to generate a radio frequency alternating current that is then applied to the antenna, which, in turn, radiates this as radio waves.

## **Wearable Devices in Workers Compensation**

Wearable technology products are being designed with business applications in mind with the promise of improving workplace productivity and the overall efficiency of organizations. Management is going to need to be able to make the business case that the use of wearable devices would make the company more profitable, more secure, more successful and that employee data is private and secure. Organizations in the process of adopting and evaluating wearable technologies show that, generally, smaller companies are more interested than their larger counterparts. Retailers and manufacturers have tended to be ahead of other sectors.

## **Potential Risks of Wearable Technology**

As great as the upside potential is for companies involved with wearable technology, the downside of potential liability risks cannot be ignored.

Companies should closely consider three major risk categories posed by wearable devices, so they can decrease their exposure to costly liability claims.

Wearable technology risks fall into three main categories:

First are cyber risks, consider If the data transmitted via wearables is not properly secured, companies could face class action lawsuits, costly fines and damage to their reputation.

Second is bodily injury risks, the potential that devices malfunction which could result in injuries, illnesses and even death of the wearers. The device manufacturers may face a product liability lawsuit. Third may be technology errors and omissions risks, in which companies may be held liable for an economic loss from the failure of a device to work as it was intended.

## **II. Wearable Technology's Impact for Workers Compensation**

There are several applications for wearable devices to help prevent injuries and create safer workplaces, which is a major focus for employers. One industry that is receiving attention to introduce the use of wearables is construction. High-tech vests and "smart" hard hats with lights, motion sensors, gyroscopes, altimeters, and other technologies have been introduced that help to monitor and measure distances between employees and vehicles, hazardous equipment, or high-hazard areas that employees should avoid.

These devices can also measure fatigue levels and body temperature, and identify repetitive motions. So if a worker is injured in the workplace, data could be transmitted to medical resources in real time that can assist risk professionals make smarter decisions about whether a jobsite is unsafe. The data can also help to avoid serious injuries. If someone sees that an employee is fatigued or has a high body temperature, they can recommend that they take a break to rest or receive medical treatment if needed.

And the wearable devices can also warn an employee before they move into a high-risk area. Beyond construction, there are a few other ways you can use wearables in the workplace. For companies in some industries, employees will use forklifts or other heavy industrial equipment that requires them to use both hands and really stay focused on the task at hand.

With having wearable devices that sound alarms to alert other employees when they're in close proximity or that turn on lights when they go into areas where pedestrians are present.

In a manufacturing setting where it's often very noisy and difficult to hear, a vibrating sensor in a wearable device could let employees know when they're getting too close to a production area that could pose a potential danger.

The primary focus is on safety prevention, training, claim management, disability management and wellness.

### **Safety Prevention**

Wearable sensors are being placed into employees' clothing and equipment to track the location of the employees in real-time and alert them to potential dangers. The sensors also capture body movements and compare them against reference data to identify any bad habits among employees. Flame-resistant moisture absorbing clothing has been developed for firefighters which contains sensors to track biometrics such as heart rate and respirations, as well as body temperature. This information would provide immediate alerts concerning risky exposures that may result in employee harm or injury.

### **Safety Training**

Wearables can provide an opportunity to improve employee safety training. With wearables, you can explore many different types of interesting educational applications, like live-streaming events at a worksite, or using video for an impromptu review after a shift to reinforce safety behaviors. And by using wearables that track employee motions, employers can identify common unsafe behaviors and develop ways to correct them. All of this training and

education can be delivered in a more interactive way and allow for a more effective learning experience than some of the more traditional approaches that are commonly provided in the workplace.

#### **Data / Predictive Analytics**

The real time availability of data and the automatic, real-time monitoring allows for workplace productivity assessments as well as safety improvements. Combining the employee data with third-party sources can provide opportunities to enable smarter decisions for job functions in the workplace. Data enables the ability to conduct predictive modeling and to evaluate employees' compliance with best practices, and to provide real-time reporting audits that can contribute to safer workplaces and increased efficiency.

#### **Claims Management**

There have been some opportunities identified to assist with the effective management of claims and to facilitate claims management decisions that are backed by data from wearable devices. Data may assist in steps to determine claim compensability decisions and set up a red flag if fraudulent information is provided that does not align with the data collected through the wearable device. New claims processing methods and fraud mitigation may be implemented, based upon analysis of data collected through wearable devices. Data related to the real-time work-related injury or accident and the location of the injured worker can be used to managed the claims process. In theory, data from wearables could facilitate claims management compensability decisions, and could indicate potential cases of fraud where the information provided by an injured employee does not align with the data collected through a wearable device.

#### **Disability Management / Return to Work**

Data may provide a process to monitor if a recovering employee is compliant with any transitional duty activity. The wearable device could potentially monitor employees who are either overextending themselves in a transitional duty position or are non-compliant with the physical restrictions. Return to work programs focus on faster healing through appropriate medical care and treatment. Keeping employees healthy and avoiding minor injuries from "migrating" to more serious problems is another focus.

Wearable devices could monitor the compliance of recovering employees engaged in temporary transitional duty positions. The feedback and data from the wearable devices may assist with motivating injured workers to accomplish short term goals with resuming modified physical tasks more quickly.

### **Wellness**

Through wearable devices some employers see an alignment with wellness that provides a holistic approach to health management. Some companies are using wearable devices to help to prevent workplace injuries by encouraging employees to take care of themselves. As part of a broader push to introduce wellness programs in the workplace, some businesses purchase fitness bands, smartwatches, or other devices to share with employees, and to encourage them to use these devices to track several activities that can measure safety. As an example, how many steps they take each day or how much sleep they're getting every night. With these devices, employers can empower employees to stay on top of their personal health, which can be backed up with incentives for employees, and can also be used to monitor and encourage good safety habits such as avoiding actions that could help avoid repetitive stress injuries or accidents.

### **III. Considerations for Wearable Technology for Workers Compensation**

There are both benefits and challenges when introducing wearable devices into the workplace.

#### **Potential Benefits**

Some of the potential benefits identified include a wellness orientation to employees when using the data to assist in health management and increased productivity. With faster recovery and prompt appropriate return to work can contribute to lower overall Workers Compensation claim costs. The focus of preventing potential injuries and accidents remains a key.

#### **Potential Challenges**

There are also potential challenges that employers should consider when introducing wearable technology in the workplace. The collection of data on employees' health and their physical movement can trigger a host of potential ethical and legal concerns for employers. With

the potential privacy and antidiscrimination law implications, employers should exercise caution and consult with their corporate legal resources. Since the personal data is eventually stored in servers there should be a heightened focus on cyber and data security and being alert to privacy threats and any data breaches. Also recommend reviewing and examining the wearable technology vendor's encryption procedures. Another issue is the potential for bodily injury from malfunctioning devices. There has been concern over the limited battery life and the bulky hardware with some wearable devices.

#### **IV. Considerations for Employers When Evaluating Wearable Technology Vendors**

When employers are considering what wearable devices to pilot or implement, it is recommended that criteria is utilized in the evaluation process. Some of the questions and considerations should include:

- Is this solution an actual commercial product or is it vapor wear or someone's science project? Remember to look past the advertising and focus on the product's features. Always ask for in-person demonstrations or free trial periods.
- Is this solution practical, deployable and easy-to-use? Determine how extensively does the employer need to manage the product and how often does the product need to be charged.
- What stakeholders in my company can benefit from the data generated by these sensors? Evaluate how will the product impact your employee's behavior and your safety culture? Determine how will this product will impact your bottom line and the potential ROI.