



**Opportunities Abound for the Healthcare and Life Sciences Industries as the Pace of Medical Innovation Accelerates.**



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The coronavirus pandemic plunged the world into a public-health crisis, creating devastating consequences that will continue to be tallied for years to come, even as the virus abates. Six million lives and counting lost. Nearly 200,000 U.S. businesses closed. K-12 students are five months behind in math and four months behind in reading, likely creating a lasting achievement gap.

There is a silver lining: a dramatic increase in the **speed of medical innovation**, with the timeframe for new solutions in some cases compressed from years to weeks or even days.

And this new environment may indeed be a new normal.

In a recent survey of more than 100 healthcare leaders from medical technology and pharmaceutical companies, health systems and payers, nine out of ten respondents said, “**The pandemic will fundamentally change the way they do business, requiring new products, services, processes, and business models.**”

This white paper highlights **five trends in healthcare and life sciences** that present both opportunities and challenges in a post-pandemic era.



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## 1. Supply Chain

The **medical supply chain crisis** caused by the pandemic is well documented as demand for medical equipment, medicines and PPE exploded, and lockdowns put enormous strain on transportation, inventory and logistics. Companies around the globe experienced product shortages, delayed deliveries and increased freight costs. But a pandemic is far from the only threat to the medtech value chain. Disruptions caused by everything from natural disasters to cybersecurity breaches to regulatory changes occur frequently. According to an analysis by the McKinsey Global Institute, supply chain

shocks could cost the average **medtech company 38%** of one year's earnings over any given 10-year period.

This vulnerability has many medical equipment and pharmaceutical companies taking steps to **improve efficiency and mitigate risk** in their supply chains. Many global manufacturers are adopting a regionalization strategy, seeking to source materials from within the region where their products are made. For example, a German manufacturer may opt to source from within Europe, while an American manufacturer may want to engage suppliers from

within North America. For example, many U.S. companies are trying to find cost-competitive suppliers in Mexico as opposed to Asia. Sourcing components and materials closer to manufacturing sites mitigates potential supply chain challenges, such as logjams at seaports.

Many manufacturers are also seeking to **optimize their vendor mix through supplier consolidation**. Companies that reduce their number of suppliers can achieve competitive advantage on several fronts. Increasing the amount of business with one supplier can result in volume discounts and lead to greater

negotiating power. It also can reduce the complexity and inefficiencies that come with managing multiple vendors and can enable the manufacturer to develop a deeper, more collaborative strategic relationship with a supplier, potentially leading to improvements in both efficiency and product quality. And shipping a higher volume of products—even if different components manufactured by the same company—can help reduce freight costs.

**Supplier consolidation is not without risk**, however. Strategic sourcing and procurement executives who whittle down their number of suppliers must take special care to ensure that their top vendors are exceedingly

reliable, high performing, and expert at complying with the stringent requirements of the highly regulated medical industry.

**A global manufacturer with facilities in key locations also can be highly beneficial.** For example, a supplier with manufacturing facilities around the globe may be able to shift production from one location to another if, for example, trade disruptions occur. They also may be able to find creative freight solutions when global trade is disrupted by a backlog of shipping containers creating gridlock at a particular port.

It's also advantageous if the nature of the business enables it to identify a single supplier

that can meet multiple needs, as opposed to having to find a different supplier for each specialized part or component.

Parker Hannifin has found most of its healthcare and life sciences customers are in precisely that boat. **“Almost all of the OEMs we serve are under immense pressure to reduce their number of vendors and suppliers** in order to streamline and remove complexity from their supply chains,” said Tom Powell, Parker Hannifin global business development manager. “The optimal number of suppliers varies by product and by OEM, but most are finding it advantageous to have fewer vendor partners rather than more.”



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## 2. Elective Surgeries

**Shortages of personal protective equipment** for healthcare workers and **limited hospital and ICU beds** for patients led to a dramatic drop in non-emergency surgeries early in the pandemic, but a recent study by Stanford Medicine found that the drop was only temporary. Within just a few months, except for otolaryngology surgery, elective surgeries in other major categories for procedures such as cataract repair, hernia repair, and knee and hip replacements had rebounded.

Manufacturers of medical and surgical devices must look for pent-up demand and forecast where growth is likely to occur, then ramp up production to meet

the demand. They also need to be mindful that just because it's called an elective surgery doesn't mean it's optional. The procedure still may be medically necessary; it's just that it can be scheduled weeks or even months in advance.

**According to a study by Report Ocean**, the global medical device market was worth \$434 billion in 2021 and is expected to **grow by 6.3% annually**, reaching \$625 billion by 2027. The report says demand is being fueled in part by the increasing incidence and prevalence rates of chronic diseases such as arthritis, liver inflammation, cancer, renal diseases, diabetes, chronic pain, sciatica, and other nervous disorders.



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## 3. Wearable Devices

The **wearable medical devices market** is growing at an astonishing pace. Valued at \$19.5 billion in 2020, it is **expected to grow at an annual rate of 16%**, reaching a value of \$47.9 billion by 2026. As impressive as this is, it's not surprising given the level of innovation taking place in the industry in recent years.

While the earliest versions of wearables were marketed to consumers in the form of fitness trackers, the most exciting and life-changing wearables now are medical devices worn on the body as an accessory, patch or tattoo, or implanted inside the body. A device's ability to electronically transmit critical information over the Internet

directly from the patient's body to a medical professional in real time is transforming healthcare.

**Wearables provide doctors with a wide range of metrics** that previously could be collected only in a healthcare setting. These include blood pressure, oxygen saturation level, heart rate, and a myriad of other physiological data. This information can be used in both diagnoses and treatment of illnesses and for management of chronic conditions.

For example, one company has developed a patch that can detect early signs of breast cancer. It is seen as a way to overcome current limitations of monitoring

breast health, such as "radiation exposure, discomfort, high costs, inter-observer variabilities in image interpretation, and low sensitivity in detecting cancer in dense breast tissue."

**Remote patient monitoring (RPM)**, which increased nearly 40% between 2020-2021 and almost 572% between 2019-2021, has multiple applications. It can help physicians track how a patient is responding to treatment and if an adjustment in medication is necessary. This also applies to **clinical trials**, where data transmitted remotely can help investigators study the efficacy of a test drug, as well as adverse reactions. Other examples of innovative uses of wearable

technology include a nerve stimulator worn behind the ear to treat abdominal pain caused by irritable bowel syndrome and a patch attached to a patient's forehead that uses electrical pulses to send therapeutic signals to the brain as an ADHD treatment.

**Manufacturers can capitalize on the ever-increasing demand for wearables** by continuing to think beyond the current state. For example, early wearables resembled a wristwatch, perhaps due to consumer familiarity with the form and function but expanded to include smart clothing and other forms. Next may be “**medical insertables**,” defined as medical devices located in the superficial skin layers.

In one study, researchers identified 19 insertables used for everything from cardiac and continuous glucose monitoring to drug delivery, and predicted that: “In the near future, a dozen insertables are expected to be brought



to market in application areas ranging from analyte detection to electroencephalogram monitoring and measurement of intraocular pressure.” The study concluded that “insertables have the potential to deliver clinically useful, reliable physiological data and therapy with negligible patient discomfort and risk.”

Another opportunity area involves the collection of **environmental data** that could be useful to patients. One such program was developed by

**AIR Louisville in Louisville**, Kentucky, a city known for high levels of air pollution, which makes it consistently rank among the most challenging places in the U.S. for asthma sufferers. Pollution data was collected via wearables, enabling real-time alerts to be sent to residents notifying them when conditions were likely to result in asthma symptoms. The project also led to policy changes geared toward improving air quality.

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## 4. Point-of-Care Testing

Rapid growth in the population of people with chronic diseases combined with a dramatic shift, to **remote healthcare** during the past couple of years is leading to significant growth in the **point-of-care testing industry**, creating opportunity for manufacturers. The point-of-care diagnostics market is expected to **grow from \$43 billion in 2022 to \$72 billion in 2027**. A report published in February 2022 said there were 65 point-of-care tests in active development at that time, with seven in oncology and 15 in infectious disease.

As ubiquitous as telemedicine has become, it's almost hard to remember when the concept of having a doctor's appointment over the phone or via a video call was unheard of for many people. But the pandemic changed that, and things are not going back to the way they used to be.

According to recent surveys, convenience and infection control are top reasons for the shift; **43% of adults want to use telehealth services** after the pandemic and **34% percent**

**would prefer telehealth** to an in-person office visit. More than one-third would consider replacing their primary care doctors with qualified physicians who are available on demand via telehealth. Fewer patients visiting doctors' offices and labs increases demand for point-of-care tests that patients can do themselves and that can instantly and reliably provide doctors with actionable data.

The increasing number of people suffering from chronic conditions is also fueling

demand for point-of-care testing. **According to ReportLinker, “the point-of-care diagnostics market is segmented into glucose monitoring products, cardiometabolic monitoring products, COVID-19 testing products, infectious disease testing products, coagulation monitoring products, pregnancy & fertility testing products, hematology testing products, tumor/cancer marker testing products, fecal occult testing products, urinalysis testing products, drug-of-abuse testing products, cholesterol testing products.”**

**ReportLinker says the glucose monitoring segment accounts for the largest share of the market in part due to the growing diabetic patient population base. A rise in infectious diseases around the world also is causing more need for point-of-care testing devices. All of this adds up to significant opportunity for manufacturers.**



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## 5. Medical Robots

**The use of robots in medical settings is a fascinating and fast-growing area.** The robotics market is generally categorized into two segments, **industrial and service**, and both play significant roles in improving healthcare.

While robots are familiar to those inside the healthcare industry, the average patient who encounters robots for the first time would likely be shocked at how prevalent and useful they can be. What may have seemed fantastical and futuristic is here now, with more to come.

**According to research firm GlobalData, four primary types of robots are used in healthcare: surgical robots, exoskeletons, care robots and hospital robots.**

Using high-definition cameras, magnified imagery, and controls strapped to a surgeon's hands, **surgical robots** can make tiny and precise incisions inside the patient's body with a steady and tireless hand. This can result in fewer surgical errors, less invasive procedures that reduce blood loss, and faster patient recovery.

The **exoskeleton** market is one of the fastest growing segments in the medical robotics industry.

Relying on brain-machine connectivity, robotic exoskeletons use sensors attached to the body that detect small electrical signals and respond with movement at the joint, which helps patients rehabilitate from neurological disorders such as strokes and spinal cord injuries. A primary objective of rehabilitation is to restore a wheelchair user's ability to stand or walk, which can not only improve their mobility and overall quality of life but can also help avoid the “secondary medical issues associated with lack of weight bearing, such as osteoporosis, urinary tract infections and pressure sores.”



**Robots also help care for patients,** both physically and emotionally. This includes the elderly and disabled. A robot can help a patient get in and out of bed, or perform tasks normally done by a nurse, such as taking vital signs. There are also therapeutic robots who take on the behaviors of a pet, improving the patient's mental health and well-being by providing companionship. This can be especially helpful for elderly people who live alone.

**Hospital robots** are also helpful to patients, albeit in a different way. They can deliver medications, lab specimens and other materials, navigating through corridors and elevators using sensors and Wi-Fi connections. Robots also hold the promise of reducing hospital-acquired infections by sanitizing and disinfecting spaces more thoroughly, quickly and efficiently than humans.

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## Conclusion

### **Disruption = opportunity.**

It's an exciting time to be in the healthcare and life sciences industry, with promising innovations occurring at an ever-quickenning pace. Healthcare leaders are rethinking the way they do business and are adapting

with new products and services. And companies that can overcome ongoing supply chain challenges and meet the increasing demand for wearables, POCT and medical robots will prosper.



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