White paper:
COVID-19 impact

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Update on the world's major healthcare device markets – Q3 2020

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Overview: where we are today

There is no doubt that the ongoing pandemic from coronavirus disease 2019 (COVID-19) has had an unprecedent effect on healthcare systems across the world, stretching care mechanisms to their breaking point.

Nearly 33 million cases and 996,000 deaths worldwide had been confirmed as of September 28.
The impact on healthcare resources is evident: Quite simply, the world cannot cope.

The Healthcare team at Omdia has reviewed several of the core medical device markets to understand how the pandemic is changing purchasing and affecting demand at a time of critical decision-making. The team's expertise has been garnered to provide an update on the key medical imaging and clinical care markets to serve as a guide for the healthcare industry during a time of uncertainty.

While this article provides an overview of the imaging and clinical care device markets, Omdia has provided additional discussion and focused product insights. Also available are previous Omdia insights on ultrasound, imaging, ventilators, AI in imaging (CT), MDR, and HCIT/digital health.

Impact on demand for major healthcare devices

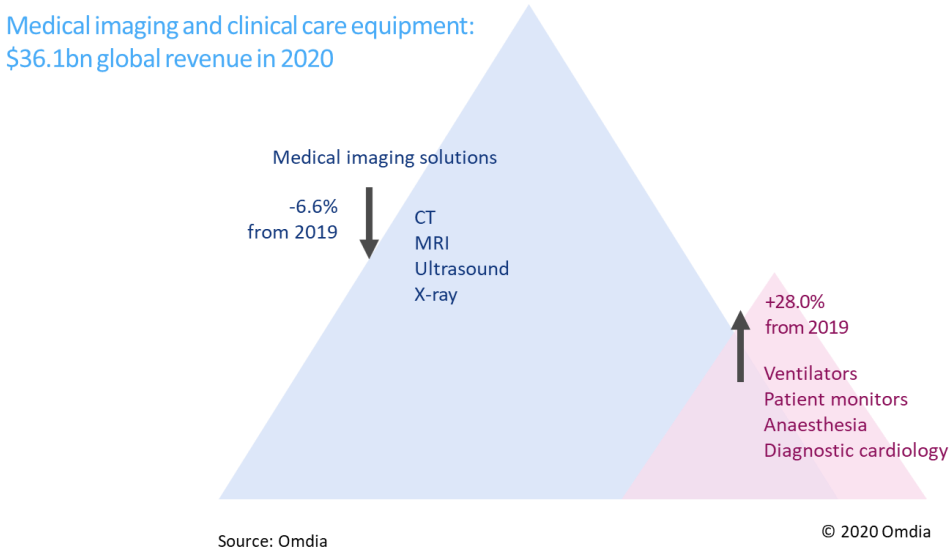
The novel coronavirus was first discovered in December 2019 in Wuhan, China. Associated with the virus that caused the SARS outbreak in 2003, COVID-19—short for coronavirus disease 2019, can lead to respiratory distress in those severely affected by the disease. Most people infected with COVID-19 will experience mild to moderate respiratory illness, with common symptoms including fever, cough, and shortness of breath. However, older people, and those with underlying medical problems such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer, are more likely to develop serious illness.

In the wake of COVID-19, the purchase of healthcare devices has risen dramatically. This is true not only in devices being used to diagnose the disease, such as digital X-ray and CT, but also in devices for monitoring and treating associated complications, such as ventilators and patient-monitoring solutions.

To date, demand for solutions has largely followed COVID-19 incidence—the territories with significant new cases being reported are the same ones requesting new shipments of key devices to support the rising numbers of those becoming sick. Of note, these territories include China, North America, and Western Europe, which also happen to be the largest healthcare markets.

Conversely, these markets have also seen the largest declines in the shipment of devices not considered critical to the diagnosis or treatment of COVID-19.

Global revenue for the core medical imaging and clinical care segments in healthcare will reach $36.1bn this year, up 1.7% from $35.5bn, Omdia is projecting. The medical imaging segment will account for about 70% of industry revenue, as shown by the larger of two triangles in the graphic below, with the clinical care segment making up the rest.



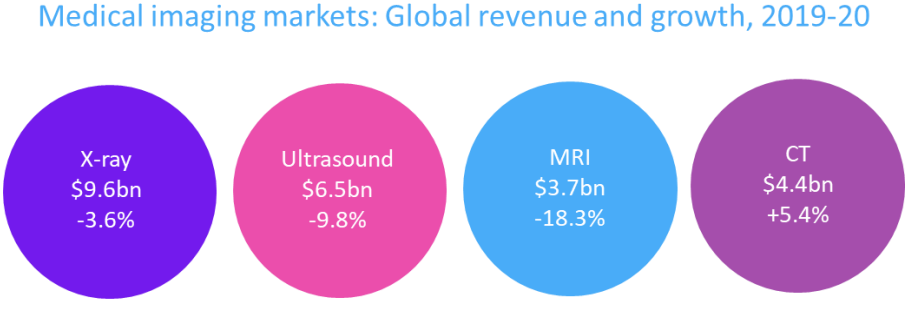
Source: Omdia

Assessment of overall growth and key points by market

This section breaks down our analysis and assessment into two major areas: medical imaging and clinical care. The medical imaging area covers X-ray, ultrasound, MRI, and CT. The clinical care area covers ventilators, patient monitors, anaesthesia devices, diagnostic cardiology, and other devices and supplies.

Medical imaging key points

Across the medical imaging market, demand has varied for imaging equipment, depending on its necessity in COVID-19 diagnosis. Even within each major imaging modality, however, we have seen sharp increases or declines, depending on the core function offered by the imaging solution. For instance, equipment used directly to diagnose patient condition while patients were in the throes of the virus have seen an uplift in demand. In comparison, equipment that is not directly related—such as surgical imaging solutions—have seen a decline.



Source: Omdia

Below is an update on the developments and changes affecting the X-ray, ultrasound, MRI, and CT markets.

X-ray

Mobile digital radiography (DR) systems are considered the first point of call in suspected cases of COVID-19, owing to the capabilities of bedside imaging, which can be used in emergency rooms, accident and emergency (A&E) facilities, and intensive care units (ICUs). Because of COVID-19, stimulus funds (discussed later in this paper) have been diverted to diagnostic X-ray, and growth in radiography is projected to be above normal levels in 2020.

Whereas CT was initially recommended at the forefront of the screening process for COVID-19 in earlier cases from China, mobile digital radiography solutions are now being used primarily in suspected cases to assess lung function and potential pneumonia diagnosis. A cost-efficient alternative to a fixed radiography room or CT system, mobile digital radiography systems allow technicians to bring the equipment to the patient, rather than the other way around. This can help save time in critical COVID-19 cases by enabling timely initial diagnosis, resulting in more efficient workflows and usage in A&E, ICU, and COVID-19 units. Mobile digital X-ray equipment dedicated to COVID-19 imaging can be set up closer to ICUs, decreasing risk of virus transmission, with some mobile X-ray systems becoming dedicated for COVID-19 cases. Manufacturers, having seen the rapid sale of existing mobile DR inventory to hospitals, have responded by increasing production.

The use of interventional X-ray is projected to decline in 2020. This is because as non-critical and elective surgeries are delayed, the number of interventional procedures are projected to fall in the short term, thus delaying new purchases until the pandemic subsides. Owing to their saturated markets, similar declines are projected for mammography and mobile C-arm, as priorities are shifted to focus on increasing diagnostic imaging for COVID-19 patients.

Ultrasound

Point-of-care (POC) and primary-care systems are being utilized more extensively in managing the pandemic, fueling demand for these ultrasound systems used in these specific applications in 2020. Healthcare providers can use POC ultrasound systems for triage, monitoring, and diagnosis of COVID-19 patients. Other types of ultrasound equipment not utilized in managing the pandemic are expected to be negatively affected in 2020, with demand then returning in 2021 and onward.

MRI

With an average price tag of just under $800,000, orders for high-cost MRI solutions are expected to be delayed in 2020, as budgets are diverted toward diagnostic devices specifically used for COVID-19.

CT

The current pandemic is accelerating the purchase of CT—computerized tomography—systems in advanced cases of pneumonia to further assess a patient's lung condition. During the initial stages of the COVID-19 outbreak, CT was used primarily, alongside DNA tests, to diagnose cases with the detection of pneumonia considered to be a key symptom. However, recommendations and guidelines now advise mobile digital radiography to be the fundamental imaging system for screening, and the use of CT is now discouraged for initial COVID-19 diagnosis, owing to the time required for decontamination and sterilization. If a patient diagnosed with—or is suspected of having—COVID-19 has been scanned, the CT room has to be shut down and sterilized for 70 minutes. As a result, CT is not advised to be used as a screening or first-line test to diagnose COVID-19. Instead, CT is encouraged to be used sparingly and reserved for hospitalized and highly symptomatic patients with specific clinical indications for CT.

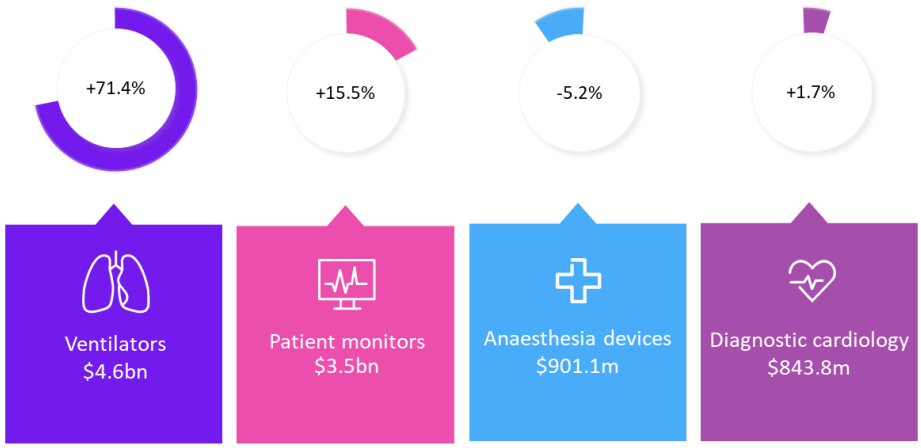
Nonetheless, the increased sensitivity of CT enables it to offer stronger diagnostic power than mobile digital X-ray systems. Accordingly, demand for CT equipment is expected to rise over the course of

this year as the imaging of patients exhibiting more critical and progressive effects of the disease continues to rise, uplifting revenue to above-normal market growth levels. CT will be used predominantly in COVID-19 patients with functional lung impairment and low blood oxygen during COVID-19 progression, to monitor the severity of COVID-19 and the digression of lung function.

Clinical care key points

Like the imaging market, demand for clinical care devices in 2020 is a mixed bag, but the market overall is trending positively. Large increases in demand are projected for devices used in the clinical treatment of COVID-19 patients, in addition to products that monitor and diagnose patient status.

Clinical care markets: Global revenue and growth, 2019-20



Source: Omdia

Below is an update on the developments and changes affecting the markets for ventilators, patient monitors, anaesthesia devices, and diagnostic cardiology.

Ventilators

This year, a significant 105% increase is projected in ventilator shipments in the critical care-high acuity segment, where high-end ventilators with advanced functionality are deployed exclusively in critical-care settings. Growth, at 88%, is likewise high in the critical care-mid acuity segment, where the ventilators being used are also for critical-care situations but do not possess the same level of advanced features found in the high-acuity segment. In the sub-acute segment, where ventilators are designed for use outside the intensive care unit (ICU) of hospitals or lower acuity healthcare facilities, shipments will increase by 136%. Global ventilator revenues are projected by the end of 2020 to exceed $4.6 billion, up an unprecedented 71% from 2019.

Many key manufacturers have started to ramp up ventilator production to fill the shortfall in supply. Both established players and newer entrants are attempting to meet demand in the mature markets, where the existing installed base is not large enough to respond to the spike in the number of patients requiring the machines.

Patient monitors

The requirement for patient-monitoring solutions, despite a relatively saturated market in mature regions, has increased globally in 2020 because of COVID-19, with demand being seen for monitoring solutions in all levels of acuity. As more COVID-19 patient cases surface, the need to monitor their status and condition will be ever critical. Given the severe lack of healthcare staff to look after the rising number of patients, monitoring solutions offer support to frazzled healthcare staff to alert them to patient needs. By ensuring continuous patient monitoring, monitoring solutions can detect

any sudden deterioration in a patient and enable healthcare professionals to provide necessary treatment that could forestall the need for ICU admission.

The need for remote monitoring of patients has also increased demand for remote solutions, especially in cases where patients are unable to go to a healthcare facility.

Anaesthesia

As the shortage of ventilators is felt globally, demand for alternative solutions has increased. Existing orders for new anaesthesia devices are projected to continue in the short-term as healthcare systems take on what they can to ensure safe treatment of patients with COVID-19 symptoms. Nonetheless, there is expected to be an overall reduction in demand to replace existing installations because there are fewer elective and non-critical operations scheduled during the COVID-19 pandemic in 2020. New orders for anaesthesia devices have been delayed to the second half of 2020 and early 2021.

Diagnostic cardiology

The American College of Cardiology (ACC) has provided guidance on deferring non-urgent cardiovascular testing and procedures during the COVID-19 pandemic. Similar guidance has been recommended by global societies to reduce the risk of COVID-19 transmission to patients as well as healthcare staff. This has resulted in reduced demand for diagnostic devices overall in the short term. Yet demand is projected to increase toward the tail end of 2020 through 2024, as diagnostic testing returns. This is further exacerbated by the number of patients likely to suffer disease or long-term illness as a result of COVID-19. Based on these expectations, demand for resting and holter ECG diagnostic equipment is projected to rise because of an anticipated increase in cardiac disease and co-morbid conditions such as high blood pressure and diabetes.

Other devices and supplies being impacted

The impact of COVID-19 on the demand for healthcare devices is not limited to that for equipment and devices mentioned above, because healthcare provisions are projected to change widely across the medical space, depending on the sector being affected. What is clear is that demand for the following core markets is also increasing, but whether supply will be adequate is uncertain.

- Personal protection equipment: Demand has skyrocketed globally for this type of equipment, which includes face masks, gloves, and aprons, to help protect healthcare staff while treating patients. As a result, manufacturers have been unable to meet demand and provisions remain in short supply. The shortage, however, has boosted the number of vendors offering manufacturing capacity to fill the current gap.

- Respiratory care and patient monitoring accessories: Usage has also increased for this class of equipment, comprising disposable accessories such as intubation tubes; patient interfaces (masks); ECG electrodes, leads and wires; and gas-monitoring accessories.

- Infusion pumps: Sales have increased significantly for these devices given their critical role in the treatment of COVID-19 patients. In April 2020, the FDA issued guidance to help expand the availability and remote capabilities of infusion pumps and their accessories for healthcare professionals during the pandemic. The guidance hopes to reduce the instances in which a healthcare professional will need to attend to a patient exhibiting COVID-19 symptoms to receive continuous infusions, which could then expose the caregiver to the virus. The issuance is likely to expand the number of infusion pumps on the market possessing remote programming capabilities.

Other factors of note

Three factors of note are discussed in this section: financial stimulus packages made available by the governments of the US, UK, Europe, China, Malaysia, and Japan in the wake of COVID-19, resource issues, such as shortages in the healthcare workforce and a likely upscaling of telehealth services; and notes on the manufacture and supply of components for medical devices.

Financial stimulus packages

In response to not only the financial but also to the resource implications of COVID-19, several governments globally have launched financial stimulus packages, including the following:

- On March 6, President Trump signed into law H.R. 6074, the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (Phase 1), which allocated $8.3 billion in aid to the US public health response to COVID-19.
- The UK government announced £30 billion of additional support for public services, individuals, and businesses experiencing financial difficulties because of COVID-19, including a new £5 billion COVID-19 Response Fund to provide for extra resources that might be needed by the NHS and other public services to tackle the virus.
- On March 19, the European Central Bank announced the Pandemic Emergency Purchase Program (PEPP), an asset-purchase program that will buy roughly $800 billion of additional bonds throughout 2020.
- China's central bank, the People's Bank of China (PBOC), has implemented several policy measures aimed at providing monetary stimulus, with a bigger stimulus package still to come as the year unfolds.
- On March 27, the Malaysian government issued its second stimulus package to combat the economic impact of the COVID-19 pandemic. An additional 500 million ringgit has been allocated to purchase medical equipment, such as ventilators and equipment for personal protection, labs, and ICUs. A further 1 billion ringgit has been allocated for purchasing medical equipment and expertise from private healthcare services.
- On April 4, Japanese Prime Minister Shinzo Abe announced a new stimulus package. While it has not yet passed, some details on its provisions are available, including increased spending on medical supplies.

Resource issues

Throughout the healthcare industry in both mature and developing markets, healthcare initiatives and strategies prior to COVID-19 had been based around reducing the cost of healthcare. Whether because of a lack of budget from recent economic difficulties or because of a fundamental lack of resources, many countries are under pressure to reduce the amount they spend on healthcare. The main strategy to achieve this in the developed markets is to increase productivity and efficiency within healthcare. In the emerging markets, the main emphasis is to ensure that the amount spent on devices is efficient, but healthcare efforts are complicated by the severe lack of key qualified personnel to care for ever-increasing populations.

- A global shortage of about 13 million people in the health workforce is predicted to occur by 2035.
- There are expected to be 1.2 million registered nursing vacancies in the US by 2022.

- A potential shortage of more than 2 million health workers in the EU is forecast for 2020.
- A deficit of over 1 million health workers in Southeast Asia and 1 million elder-care workers in Japan were reported in 2018.

The COVID-19 pandemic has further highlighted the need for investment in the healthcare workforce and in solutions that enhance workflow, to ensure that the highest level of care is provided. Healthcare providers globally will have to rethink the way in which care is provided. Market developments were already tailored toward improving workflow and efficiency, and once the COVID-19 pandemic subsides, the need for feature-rich solutions will be even more paramount to enable providers to extend aid in crisis situations in the future.

Overall, an upsurge in remote monitoring and patient assessment will be likely. As reported previously, an example of upscaling telehealth solutions occurred in March as a healthcare system needed to scale from a few hundred connected physicians to several thousand within less than three days because of the recent COVID-19 outbreak.

For its part, the Centers for Medicare & Medicaid Services (CMS) has broadened access to Medicare telehealth services so that beneficiaries can receive a wider range of services from their doctors, without having to travel to a healthcare facility. The CMS is expanding this benefit on a temporary and emergency basis under the 1135 waiver authority and the Coronavirus Preparedness and Response Supplemental Appropriations Act. Based on this new waiver, Medicare can pay for office, hospital, and other visits furnished through telehealth services across the country, including the places of residence of patients. It is likely that this will continue past 2020, as healthcare providers and their patients become more accustomed to remote healthcare provisioning.

Notes on the manufacture and supply of components

The first case of COVID-19 was discovered in Wuhan, Hubei province in December 2019. Wuhan is one of China's manufacturing hubs, responsible for producing automotive, electronic, and semiconductor components. Wuhan and surrounding cities in Hubei were placed on lockdown Jan. 23, 2020, to help contain the virus. This subsequently had major implications on the production of electronic components and semiconductors and their supply to other global markets.

While several major manufacturing countries have been on lockdown since then, the manufacturing of products considered critical to life has continued. Even so, the supply chain for important components in medical devices has been affected, slowing the production of devices and creating further tension in the healthcare space. Omdia's recent Application Market Forecast Tool (AMFT) has lowered its industrial forecast overall of electronics equipment and semiconductors. However, the medical segment is the exception, with a projection showing growth of 5.3% forecast in 2020, partly driven by medical ventilators, surgical supplies, and telehealth solutions.

Impact on 2021

This final section deals with the projected impact next year, in 2021, of COVID-19 on two areas: the world of finance and the global economy; and healthcare resources and infrastructure.

Finance and the global economy

Early April saw the IMF release of new global economic forecasts, which showed significant downgrades; a sharp drop of 3.0% in global GDP in 2020. Current projections show the global economy to grow by 5.8% in 2021 as economic activity normalizes. With a global recession imminent, financial resources outside of stimulus packages will be limited. While purchasing decisions in 2020 largely targeted new devices focused on the diagnosis, monitoring, and treatment of COVID-19, purchases of non-critical devices are likely to be subjected to financial restraint in 2021 and beyond. Purchasing decisions are expected to be criticized, with demand for equipment that provide the best return on investment prioritized over more expensive, high-end solutions.

Healthcare resources and infrastructure

Without a doubt, the current climate will create a knock-on impact on the way healthcare is provided in the future. The pandemic has brought into sharp focus just how vulnerable healthcare systems are worldwide, with healthcare facilities currently operating at maximum capacity and possessing little flexibility when demand is pushed. The lack of healthcare staff, despite a steady rise in their numbers over the last few years, will exacerbate issues, and a drive is likely to recruit new healthcare staff to serve as a buffer for any future pandemics.

Because of the focus to improve productivity and efficiency, attention in the mature markets will be to improve IT infrastructure to allow better connectivity among devices and among healthcare sites within an enterprise. This lowers the burden on staff by reducing the amount of administrative work required, allowing caregivers more time to focus on patients. Additionally, the ability to connect remotely with other systems enables quicker access to records that are also more accurate. To this end, demand for connected and interoperable solutions will increase post COVID-19 to enable more efficient and safer healthcare facilities.

Omdia will continue to closely monitor developments surrounding COVID-19 and provide timely updates as needed for information and guidance. We urge everyone to take all available precautionary measures at every turn to stay safe and remain healthy.

This white paper is offered under Omdia's Industrial research pillar. Omdia subscribers also have full access to our Healthcare Technology research service and its two research categories, namely Healthcare IT and Medical Devices & Equipment.

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