McKinsey & Company

Pharmaceuticals & Medical Products Practice

Reimagining medtech for a COVID-19 world

COVID-19 is creating unprecedented challenges for the medtech sector. Companies should consider stress-testing operating models to strengthen crisis resilience and the longer-term path to recovery.

by Siddhartha Chadha, Mike Ennen, Rajesh Parekh, and Gerti Pellumbi

April 2020

COVID-19 has presented a humanitarian crisis like no other, with nearly two million infected by the virus and tens of thousands of lives lost. Indeed, the speed and depth of disruption due to the pandemic is creating unprecedented challenges for societies and economies across the world. This is especially clear on the frontlines of healthcare delivery. As infections spread around the world, health systems have redirected substantial resources to COVID-19 response efforts.

COVID-19 has put the medtech industry at center stage with unparalleled demand for diagnostic tests, personal protective equipment (PPE), ventilators, and other critical medical supplies. In addition to the extraordinary measures underway to rapidly ramp up manufacturing capacity and capabilities, medtech leaders are also looking outside their normal sector boundaries to explore creative solutions to further supplement capacity, such as partnerships with companies outside the sector, open-source equipment design, and deployment of medically trained employees to support public-health needs.

The medtech industry is also being affected by the dramatic drop in elective medical procedures, many of which are being postponed or cancelled so that hospitals can focus resources on treating COVID-19 patients. In fact, McKinsey's models project a 60–80 percent decline in elective procedures in the second quarter of 2020 for Europe and the United States, with an additional 40–50 percent decline in the third quarter. Another concern: when the recovery begins, it could be accompanied by a resurgence of demand for both elective and delayed essential procedures, straining business models and financial resilience.

This crisis has seen the medtech industry quickly recalibrate across the value chain to serve healthcare's critical needs. But beyond the immediate crisis response, medtech companies should consider additional imperatives —particularly over the next three to nine months—to strengthen crisis resilience and plan for recovery. Building and stress-testing several scenarios for procedures and product demand will be critical for identifying areas of risk and opportunity and navigating through the crisis.

The planning and actions taken in the short term can have significant implications, not only for medtech's continued resilience in the crisis, but in shaping its longer-term recovery for what is likely a significantly different future for healthcare and the medtech industry.

Impact scenarios for the United States

McKinsey has built a detailed model of COVID-19's impact on medical procedures (for the United States and Europe), which we used to create a model for predicting the potential impact on medical device sales in consumables and implants (Exhibit 1). It draws from county- and region-level demographics and predicts potential epidemiology based on several potential scenarios that take into account local-level response to the disease.

Our modeling considers two broad scenarios for COVID-19 case growth: V-shaped recovery and W-shaped recovery.

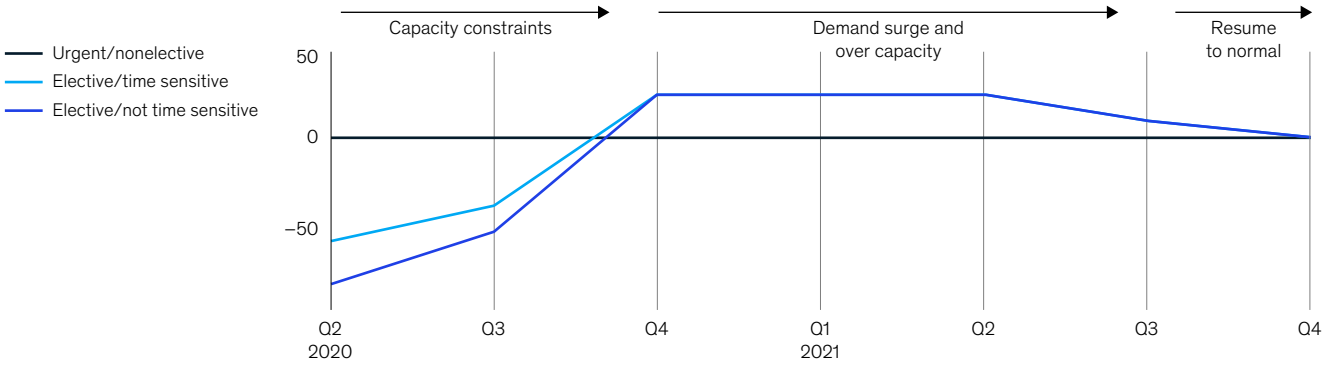
In V-shaped recovery, across most of Europe and the United States, COVID-19 infections would peak in late April or early May 2020 and then decline rapidly by the end of July. In this scenario, the impact on medtech is material: procedures would decline by approximately 70 percent in the second quarter, and up to 45 percent through the third quarter, compared with 2019. Procedures would then see a rapid ramp-up for the next three quarters to catch up on delayed elective procedures.

In W-shaped recovery, COVID-19 infections would decline from July through August followed by another round of global reinfection in September through October. In this scenario, the impact on medtech is also meaningful: procedures would decline by 69 percent and 45 percent in the second and third quarters, respectively, compared with last year. Continued declines in infections from the

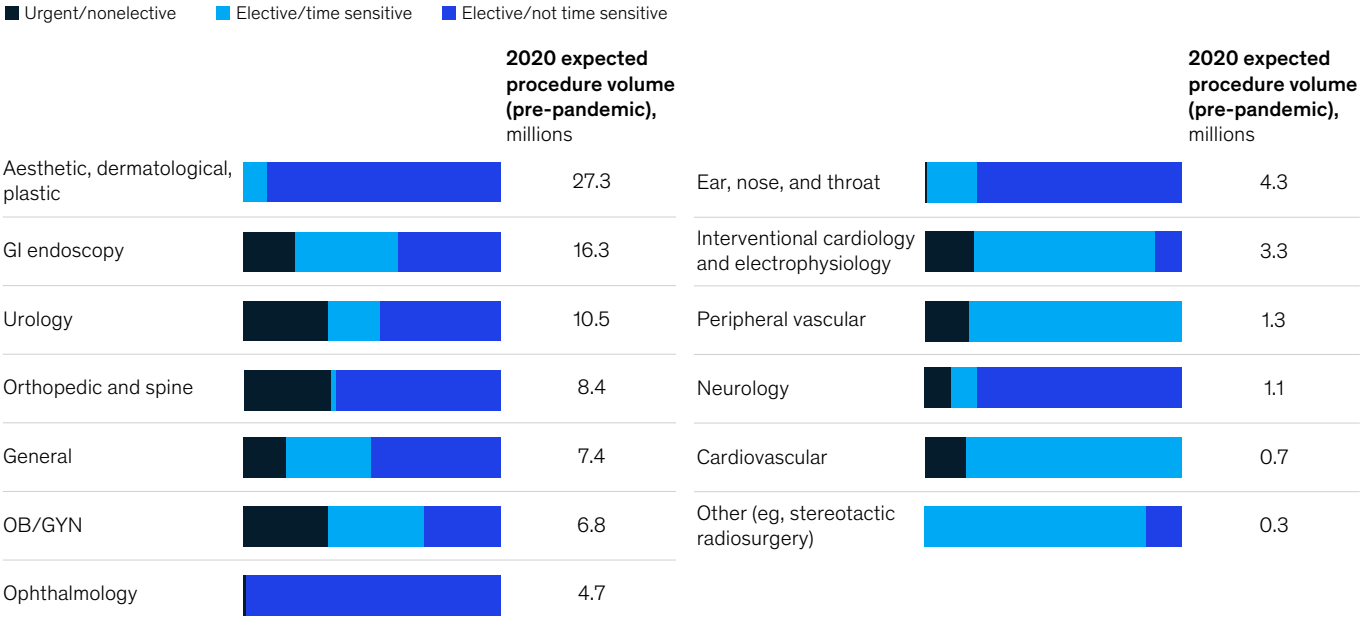
Exhibit 1

Scenarios suggest significant declines in US procedures and recovery starting in Q4 2020.

Change in expected quarterly procedure volume (pre-pandemic), %[1]



US procedural breakdown by level of electiveness, %, weighted average of procedure within each speciality



[1] Estimated based on "moderate transmission" epidemiology model, which assumes US COVID-19 case count peak between near the end of April and significant decline around September 2020 as well as strong government or social disease-control measures (eg, forced physical distancing for a prolonged period).

Source: LSI; expert and clinician interviews; McKinsey analysis

fourth quarter of 2020 through the first quarter of 2021 would precede a medtech recovery in the second quarter of 2021.

We have also developed scenarios for how the pandemic could influence capital purchases across several major medtech product categories. Three categories of capital equipment purchasing behaviors emerge with different demand curves (Exhibit 2):

1. *Accelerated capacity.* This applies to equipment that is essential to save the lives of critical COVID-19 patients. This equipment—primarily ventilators and PPE—is where we face universal shortages. Likewise, equipment to diagnose, monitor, and treat COVID-19 patients—such as anesthesia devices, mobile X-ray and ultrasound equipment, and infusion pumps—face select, localized shortages.
2. *Maintained capacity.* This applies to equipment used in COVID-19 treatment or that requires replacement—such as CT machines, dialysis equipment, or ECMO machines. Purchasing cycles for these are generally already planned and part of existing capital expenditure budgets.
3. *Deprioritization.* This applies to equipment not useful in COVID-19 treatment—such as MRI, surgical (both minimally invasive and robotic), and mammography equipment—and likely at sufficient capacity for recovery.

Regardless of which scenario transpires, given the significant toll of COVID-19 on the medtech industry's financial viability and business models, it will be critical for all companies to have a detailed analytical understanding of likely demand fluctuations, at the local and county levels and by business segment. Indeed, there are many uncertainties and many predictions are likely to be wrong, but building and stress-testing several scenarios for procedures and product demand will be critical for navigating through the crisis.

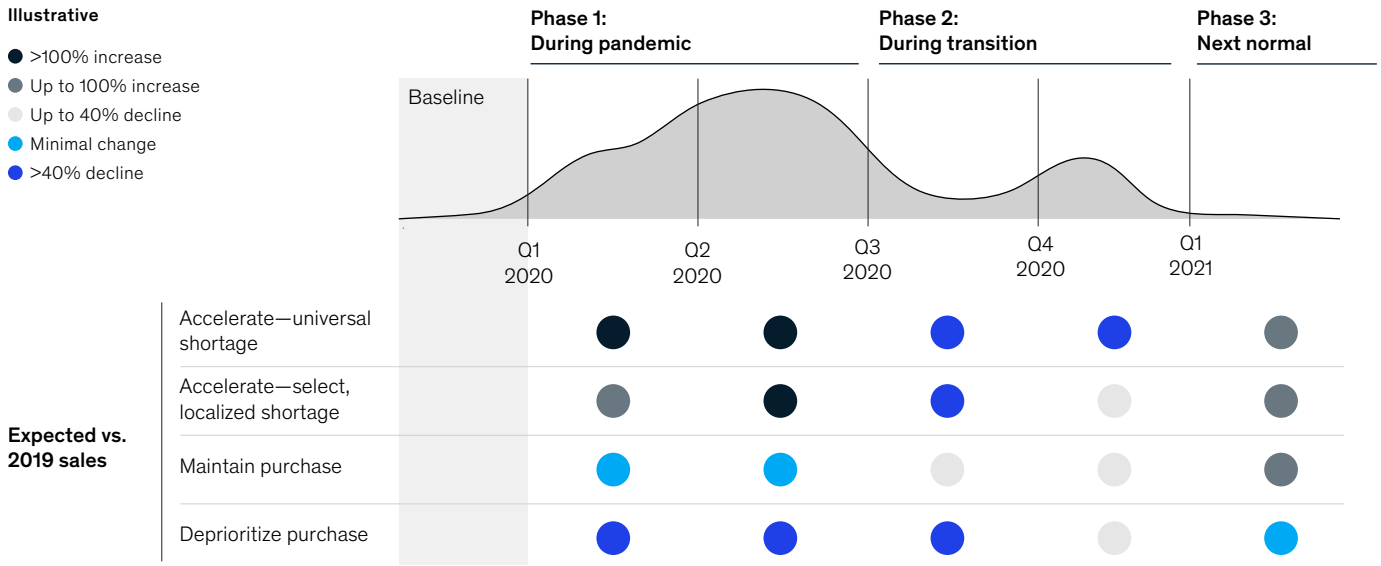
Crisis response and resilience

Medtech crisis teams are focused on immediate crisis response: keeping employees safe, ensuring

Exhibit 2

Phases of the pandemic cycle impact the demand for equipment.

Changes in US sales across the pandemic curve for medtech products[1]



[1] Baseline is 2019 orders per market reports, divided by four.

business continuity, and dealing with the rapid changes in the healthcare ecosystem and the macroenvironment. This has included rapidly scaling parts of their business to meet the increasing needs of the healthcare community during this crisis—such as production of ventilators and PPE—while adapting to dramatic slowdowns in other areas. This has also involved adapting to the rapid shifts in the location of care and patient behavior. In fact, telemedicine and long-discussed remote care have seen more progress in just a few weeks than in preceding years, and payer coverage may help sustain these changes long-term.

We are also seeing patient behavior evolve in unexpected ways. In especially hard-hit areas (such as Lombardy, Madrid, or New York), hospitals are reporting estimated drops of 70 percent and more in STEMI heart attacks.[1] Emergency room visits are also down by half or more, and admissions unrelated to COVID-19 follow similar or even more accelerated declines.[2] It is speculated, for example, that there are less heart attacks because lifestyle changes triggered by the pandemic have eliminated some common causes—such as abrupt physical exertion. But fear of COVID-19 infection could also be preventing sick people from seeking treatment. The resulting backlog of essential care will have ramifications now and for many months to come. It's too early to say whether these changes in behavior reflect a longer-term reset of patient expectations and care consumption, but medtech leaders should monitor this closely.

Beyond their immediate crisis response, medtech companies should consider stress-testing their operational models under various scenarios and identify the areas of biggest risk and opportunity. This will inform major initiatives to strengthen operations and business resilience.

While each company has its own starting point and portfolio, most should consider five key areas where action may be needed, including supply-chain management, cash preservation, go-to-market models, customer support, and clinical trial design.

Supply-chain management and reliability

Customer demand and the resulting pressures placed on the supply chain will vary tremendously from product to product. Global supply chains are also more connected than ever. Although most capital purchases and the number of elective—and even essential—procedures will decrease in the near term, supply of related products (such as surgical tools, syringes, suture material, and gauze) may still be in short supply. In fact, our research has found that more than 90 percent of global annual medical-device exports come from countries that are now in some form of quarantine.

Against this backdrop, most medical-device companies are engaged in end-to-end risk assessments to gauge points of vulnerability and ensure supply continuity. In the near term, medtech companies should consider activating supply contingency plans, repositioning inventory to areas of greatest need, and making all reasonable attempts to protect the health and safety of workers on the manufacturing floor.

While most companies focus on managing the immediate downside risks, they also should determine when they plan to ramp up production of products not intended for COVID-19 treatment—for example, by mapping out the relevant leading indicators by geography and business segment—so they can capture the rebound from the backlog of cases.

Preserving cash

CFOs are playing central roles in navigating their organizations through the crisis. To date, many have been focused on tactical workforce and programmatic decisions as well as on steps to ensure liquidity, including modifying or suspending dividends and stock buybacks. Many are taking advantage of favorable rates in capital markets. CFOs and finance leaders should also consider a specific set of actions both during the crisis and

[1] Shelley Wood, "The mystery of the missing STEMIs during the COVID-19 pandemic," *TCTMD*, April 02, 2020, tctmd.com.
[2] William Feuer, "Doctors worry the coronavirus is keeping patients away from US hospitals as ER visits drop: 'Heart attacks don't stop,'" CNBC, April 14, 2020, cnbc.com.

afterward to stabilize the business: weathering the storm and building resilience in the near term while building and retooling to support market recovery.

Initiatives related to collections, reordering frequency and batch size, and payment terms offer some of the most attainable opportunities. In fact, according to our benchmarking analysis, each such initiative has the potential for a rapid 3 to 5 percent increase in cash flow. Additionally, changes to production—just-in-time, inventory pooling and rationalization, and standardization—can free up more cash. The impact of these initiatives should be rigorously tracked in conjunction with appropriate cash controls and customer considerations.

Digitizing your go-to-market model

Even under a V-shaped recovery scenario, medtech companies should consider innovating how they reach their customers and provide service and case support. In addition, the playbook for launching new products and services may need to be thoroughly rethought. Companies should also consider quickly prioritizing and scaling new digital capabilities to enable digital touchpoints with their customers (such as online customer service representatives, webinars with key opinion leaders, professional education, and conferences for professional industry associations). Some medtech firms are also rapidly expanding other digital capabilities—for example, shifting investment to digital media, digital detailing, or creating digital product demonstrations—to further strengthen go-to-market models.

The majority of medtech companies will be reluctant to make structural changes to their commercial-field sales force and service teams in the near term. However, under most scenarios, some degree of restricted access to hospitals and customers is likely for the next two to three quarters. During this time, companies should consider using this opportunity to engage physicians and patients selectively and thoughtfully to understand new ways to serve them. Examples might include applying design thinking to reimagine patient journeys,[3] retraining or upskilling their sales force and service teams, and being flexible with customers who may have special needs or concerns regarding commercial terms over the next 90 days or so.

Companies that keep physician and patient engagement high, rapidly scale up their digital capabilities, and more accurately anticipate where and when to deploy (or pull back) commercial resources, inventory, and other investments are the ones most likely to come out of this crisis stronger and well positioned for the post-coronavirus recovery.

Customer-support and -enabling functions

Many medtech companies did not have remote-working crisis response plans in place for their customer-support functions. And given the pandemic-related challenges in countries that are popular off-shoring destinations—such as India or the Philippines—many companies that rely on offshore centers for support are facing a drop-off in service levels.

In addition to near-term actions to improve service levels, companies should consider rethinking their customer support processes, apply lean principles to their operations where appropriate, and scale up the use of automation technologies. Similar to the high-tech industry, medtech companies should adopt a customer success mindset in assessing the entire customer journey—that is, the complete set of interactions a customer has with a brand—to help ensure their products and services are providing the most value to their customers.

Clinical trial design and strategy

COVID-19 has created risk both in trial success and execution. Clinical leadership should meet with their primary investigators, data safety monitoring boards, and clinical event committees to evaluate the risk and develop mitigation strategies. Regardless of whether companies decide to continue enrollment for a trial, they may need significantly different approaches to patient follow-up. Companies should also look to expand the potential applications of real-world evidence in their integrated evidence-generation plans.

[3] For more on design thinking, see "The power of design thinking," March 2016, McKinsey.com.

Most medtech R&D programs progress over a long period of time with fewer quick-pivot options. However, budget-driven cutbacks may force a rapid prioritization of projects. R&D leaders and their upstream marketing colleagues should be prepared to make recommendations on which projects to continue or postpone. In the near-term, companies should also consider activating any capabilities that can enable remote care. For example, some devices may carry monitoring and communication functions, but a provider interface or delivery mechanism has not been developed. These are potentially quick improvements that would align with clinical need.

Reimagination and reform

When the recovery from the pandemic begins, pent-up (though perhaps partial) demand, such as in elective orthopedic surgeries, could cause a surge of growth for the medtech industry. However, the timing of recovery is certain to be uneven across geographies. In the United States, for example, New York and New Jersey are struggling under an enormous disease burden, while some hospitals in Seattle remain half full and are discussing the restart of elective procedures.[4] These dynamics will play out in other states and nations in the months ahead and medtech executive teams should consider whether their organization is ready, including commercial strategy, staffing models, R&D, and product portfolios.

Commercial organization readiness

When growth restarts, medtech commercial-field forces, for both sales and support, will continue to encounter a challenging environment. Providers are likely to face operational challenges as they try to ramp up elective care while dealing with deferred essential care. However, access to healthcare professionals and administrators may continue to be partially restricted. Provider systems will still be recovering financially and likely be cautious with capital expenditures.

Moreover, several customers—such as surgery centers, office-based practices, and struggling hospitals—may continue to be financially strained by the crisis and may face consolidation or restructuring. These and other changes may even render many pre-pandemic customer segmentations obsolete. An account-by-account engagement plan with revised contracting, practice-rebuilding initiatives, and training and capability-building investments can help to support customers through the crisis recovery.

Another important consideration is that the location and structure of care delivery is likely to change for many therapeutic categories. This poses a challenge for product development, and it also requires commercial teams to adapt in considering how to effectively incorporate the appropriate pricing and contracts to support the changes in care services and delivery. Digital tools developed and scaled during the crisis could enable some medtech companies to thrive in the longer term.

Finally, developing new regional and country models with greater flexibility in their cost structures can help absorb both downside- and upside-demand shocks.

Resource reallocation and portfolio strategy

Medtech companies have historically been slow to move internal resources across business segments and across regions. Now is the time to establish processes that can anticipate market demand and shift staffing as needed to quickly accommodate changes. This will require increased investment in employee cross-training as well as new processes to rapidly scale up support services. Companies that fail to adapt their resource allocation after COVID-19 may miss out on at least part of the return to growth.

As a complement to internal resource allocation, it will also be important for medtech players to take a critical look at their portfolios. Especially under a prolonged crisis scenario, significant changes in market structure and in valuation premiums can be expected. Companies that are prepared to reshape their portfolio will be better positioned to come out stronger in the post-pandemic world.

Clinical trial strategy and product design

In the pandemic-recovery phase, executing clinical trials will continue to be a challenge. Clinical

[4] Feuer, "Doctors worry the coronavirus is keeping patients away from US hospitals as ER visits drop," CNBC.

teams should begin planning for a potentially heterogenous recovery with restricted access at trial sites. In addition, site selection, patient activation, and trial recruitment may require new strategies and capabilities. Companies will also need to prepare for the fact that, over the longer term, a renewed focus on patient safety may result in shifts in clinical trial endpoint design—as well as more stringent reviews by institutional review boards and ethics committees. Finally, broader adoption of telemedicine and remote care may continue to enable and advance the trend toward real-world evidence and integrated evidence-generation programs.

The increased comfort among patients, providers, and payers in using telehealth and remote care should also be reflected prominently in product design and pipelines. Before COVID-19, medtech companies had been working on these capabilities in pockets, but the changes brought about by the pandemic could create momentum for more seamless monitoring, communication, data analysis, and provider interfaces.

Looking ahead

While the COVID-19 outbreak is an overwhelming humanitarian crisis, it also presents an opportunity for reform in healthcare delivery. As services, case volumes, and medtech operations stabilize, the industry and each of its participants will be challenged to fundamentally rethink their business and operating models to adapt to the healthcare needs of the future.

For forward-looking companies, taking steps now to fundamentally reimagine the system, patient journey, and their interfaces and relationships with healthcare providers is critical. These steps could include building more agile organizations, speeding time to market, and aspiring to "absolute benchmarks" for product design and development, and manufacturing efficiency.

Before the COVID-19 crisis, medtech companies were already facing pressure to localize in certain markets. After the crisis, it will continue to be important for companies to consider how to balance the pressures that can impact local supplies with the potential desires for greater flexibility in capacity. This requires companies to fundamentally rethink their supply-chain network and key suppliers.

While the crisis will necessitate tough operational choices, this is a time for all companies to live their values. Forward-thinking firms will respond with new products, services, and operating models that support healthcare organizations and the patients they serve when they need it most—now and in the future. This is both the right thing to do and will position companies for success in the years to come.

Siddhartha Chadha is a partner in McKinsey's New York office, **Mike Ennen** is a partner in the Silicon Valley office, where **Rajesh Parekh** is a senior partner, and **Gerti Pellumbi** is a senior partner in our Washington, DC, office.