COVID-19: Monitoring Impacts and Anticipating Trends to Limit Downturn and Optimize Rebound

A Healthcare Stakeholders Analysis in the US and EU-5

A Practical Guide for Product Suppliers

Alira Health COVID-19 Tracker Updated April 14, 2020





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Section

Monitoring the Impact of Covid-19 on Key Healthcare Stakeholders...

...Is Essential to Anticipate Key Trends and Emerging Needs...

...To React Short Term, Adapt Business Models and Optimize Rebound.

About Alira Health



COVID-19's Impact on Healthcare Stakeholders Varies Widely

Impact of COVID-19 on Healthcare Stakeholders

The impact of COVID-19 varies significantly among healthcare stakeholders due to differences in their exposure to COVID-19 patients, the relevance of their product portfolio for the disease, and their level of preparedness for a pandemic.

SERVICE PROVIDERS

Healthcare settings and healthcare professionals (HCPs). **Acute versus non-acute** facilities face different concerns



PRODUCT AND SERVICE SUPPLIERS

Biopharmaceutical, medical technology, and service providers. The type and level of impact to each is **contingent on their portfolio's relevance to COVID-19** prevention, diagnosis, and treatment, as well as its **stage of maturity**



Healthcare Stakeholders Segmentation



MEDICAL AUTHORITIES AND REGULATORS

Healthcare regulators (such as the **FDA**¹ **in the US** and the **EMA**² **in Europe**), **public health institutes** responsible for publishing guidelines (e.g. CDC³), policy makers, and others

PATIENTS

People currently receiving or registered to receive medical treatments **prior to or during the pandemic, whether related or not to COVID-19.** The collateral impact to a patient varies greatly by their condition





PAYERS

Public and private payers responsible for covering **medical expenses**, including diagnostics, drugs, medical devices, and procedures

Note: ¹Food and drug administration; ²European medicines agency; ³Centers for disease control and prevention. Source: Alira Health analysis.

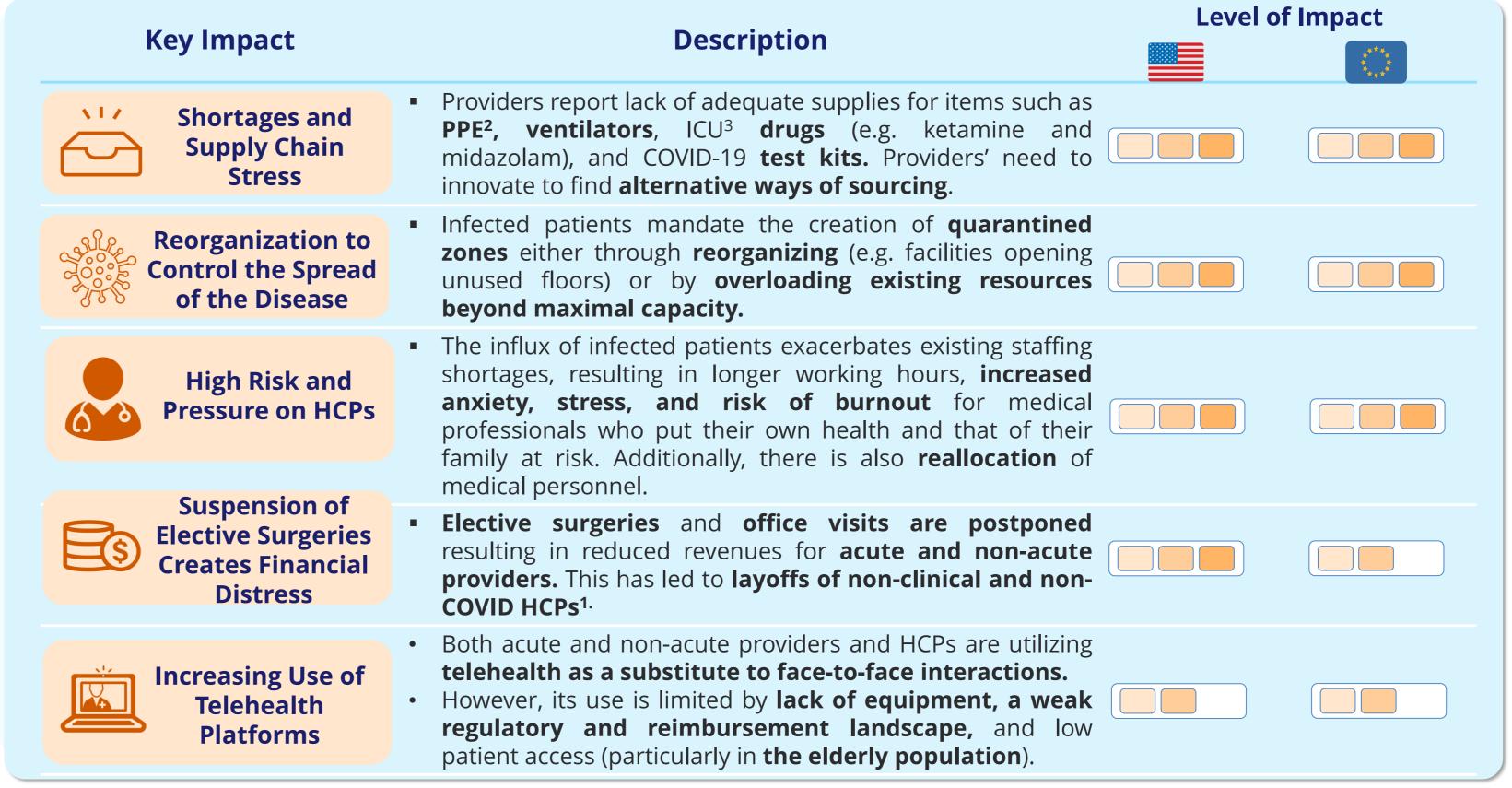


Acute Providers are on the Front-Line and Increasingly Overwhelmed

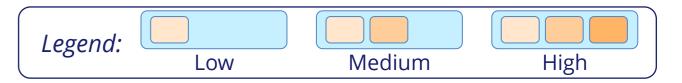
Impact of COVID-19 on Healthcare Stakeholders

Healthcare faces medical supply shortages, increased demand, and need for reorganization, placing high stress and risk on HCPs¹. Non-acute facilities suffer the financial stress of suspended non-essential visits, while the use of telehealth rises.

SERVICE PROVIDERS Healthcare Stakeholders



Note: ¹ Healthcare professionals; ²Personal protective equipment; ³Intensive care units. Source: GlobalData; CDC; ECDC; Alira Health analysis and primary interviews



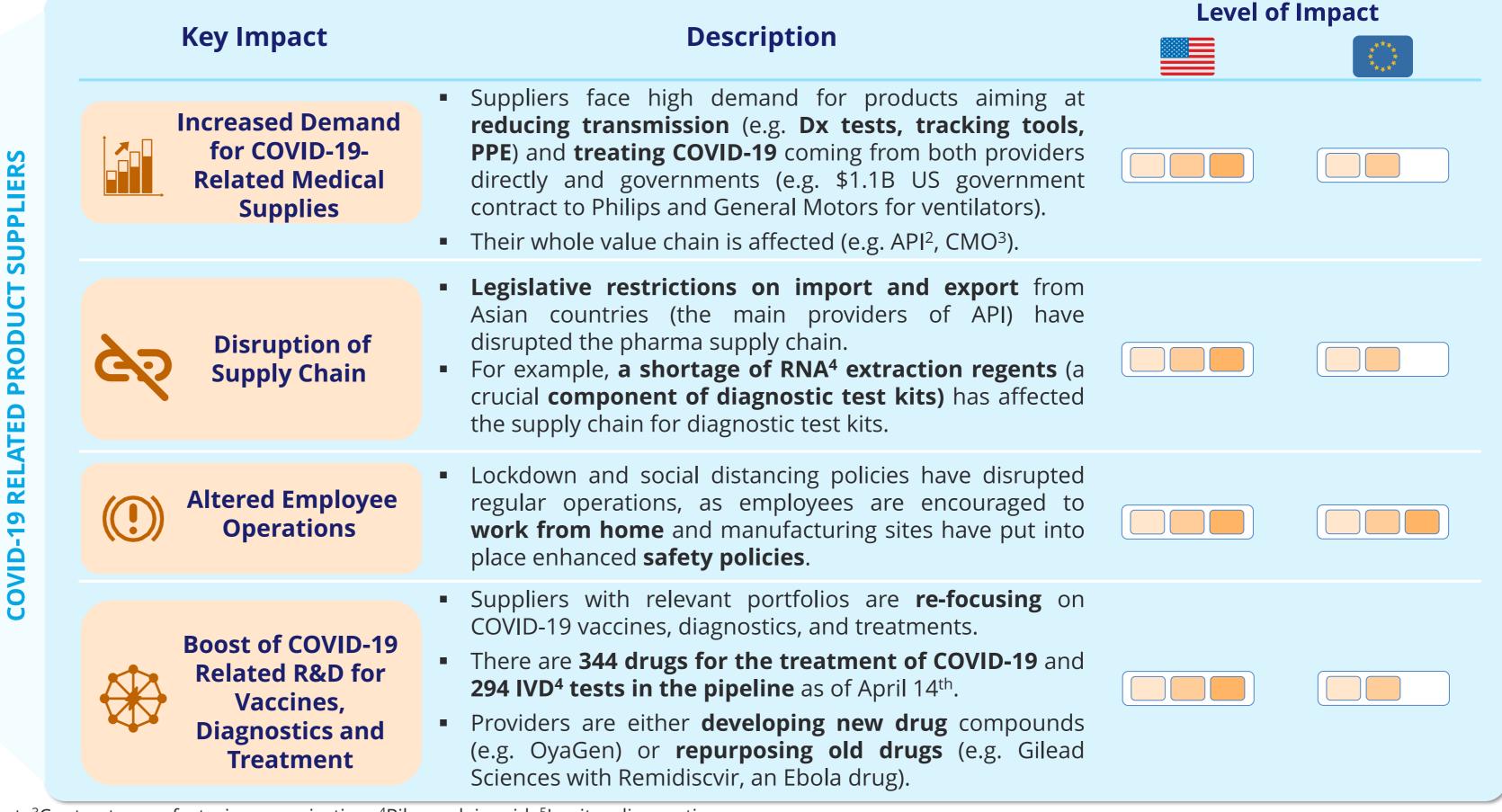


Suppliers of Disease-Related Products Face an Enormous Demand...

Impact of COVID-19 on Healthcare Stakeholders

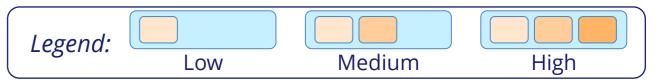
Product suppliers involved in the prophylaxis, diagnosis, and treatment of COVID-19 are facing increased demand as they undergo disruptions in their supply chain and employee operations. They are increasingly focusing on COVID-19 related R&D¹.





Note: ¹Research and development; ²Active pharmaceutical ingredient; ³Contract manufacturing organization; ⁴Ribonucleic acid: ⁵In-vitro diagnostics.

Source: GlobalData; Worldometers, Alira Health analysis and Primary interviews





...While Other Medical Product Suppliers Face Major Disruptions

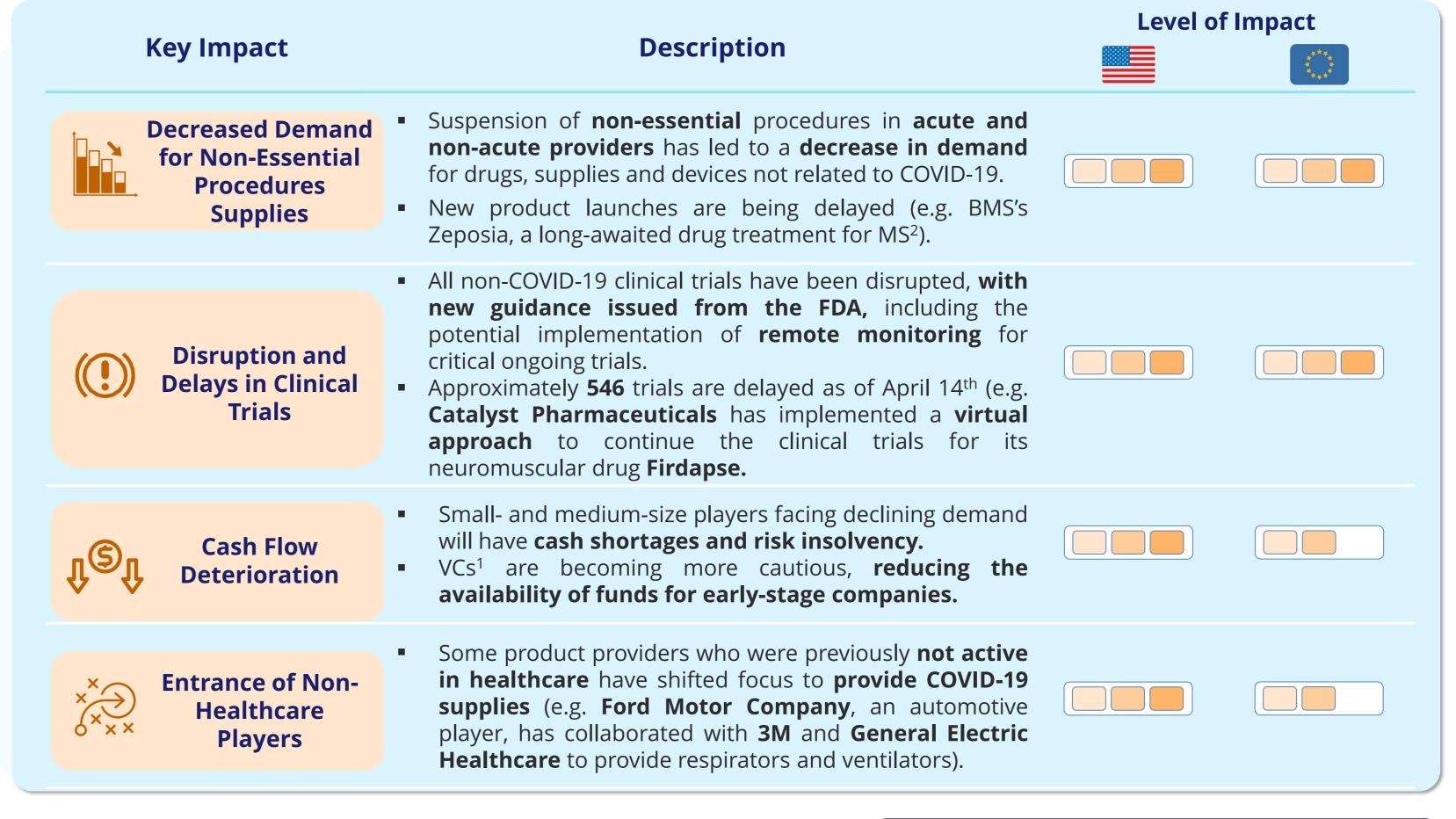
Impact of COVID-19 on Healthcare Stakeholders

PRODUCT

NON COVID-19

Non-COVID-19 product suppliers are witnessing a deterioration in product demand and cash flow, paired with disruptions and delays in clinical trials. Non-healthcare industry players are entering the market to provide medical supplies for COVID-19.





Legend:

Low

Medium

High

Note: ¹Venture capitals, ²Multiple sclerosis

Source: GlobalData; Alira Health analysis and primary interviews



The COVID-19 Death Count Continues to Rise with No Approved Treatments

Impact of COVID-19 on Healthcare Stakeholders

COVID-19 PATIENTS

With no approved treatment and a high infection rate, the death count of COVID-19 topped 120K people on April 14th. Infected patients face social stigma, isolation, and financial burden in the US, where treatment coverage policies are still uncertain.



Level of Impact Description Key Impact ■ There were **over 120,000 reported deaths** as of April 14th and an estimated mortality rate between 3% and **Lack of Treatment** 6%. and Deaths Due to the lack of approved treatment options, **Associated to** physicians are treating patients with off-label COVID-19 medications, which may have unknown side and longterm effects. Patients are experiencing severe emotional distress about infecting family members, especially those who are older or immunocompromised. **Severe Emotional** Social stigma and fear of isolation is worsening the **Distress and Poor** mental health of patients and may prevent suspected **Mental Health** cases from coming forward. Lack of accurate data on the disease has led to confusion and a pressure to "self-treat." The reimbursement polices for treatment of COVID-19 are unclear and variable. Some patients may suffer a **High Economic** high financial burden due to lack of sufficient Burden coverage. There may be a lack of trust between patients and **Lack of Trust** providers regarding equitable access to care and **Towards Health** medical supplies, as well as access to the provision **Systems** of high-quality health services.

Legend:

Low

Medium

High

Note: 1Out of pocket.

Source: WHO, Alira Health analysis and primary interviews



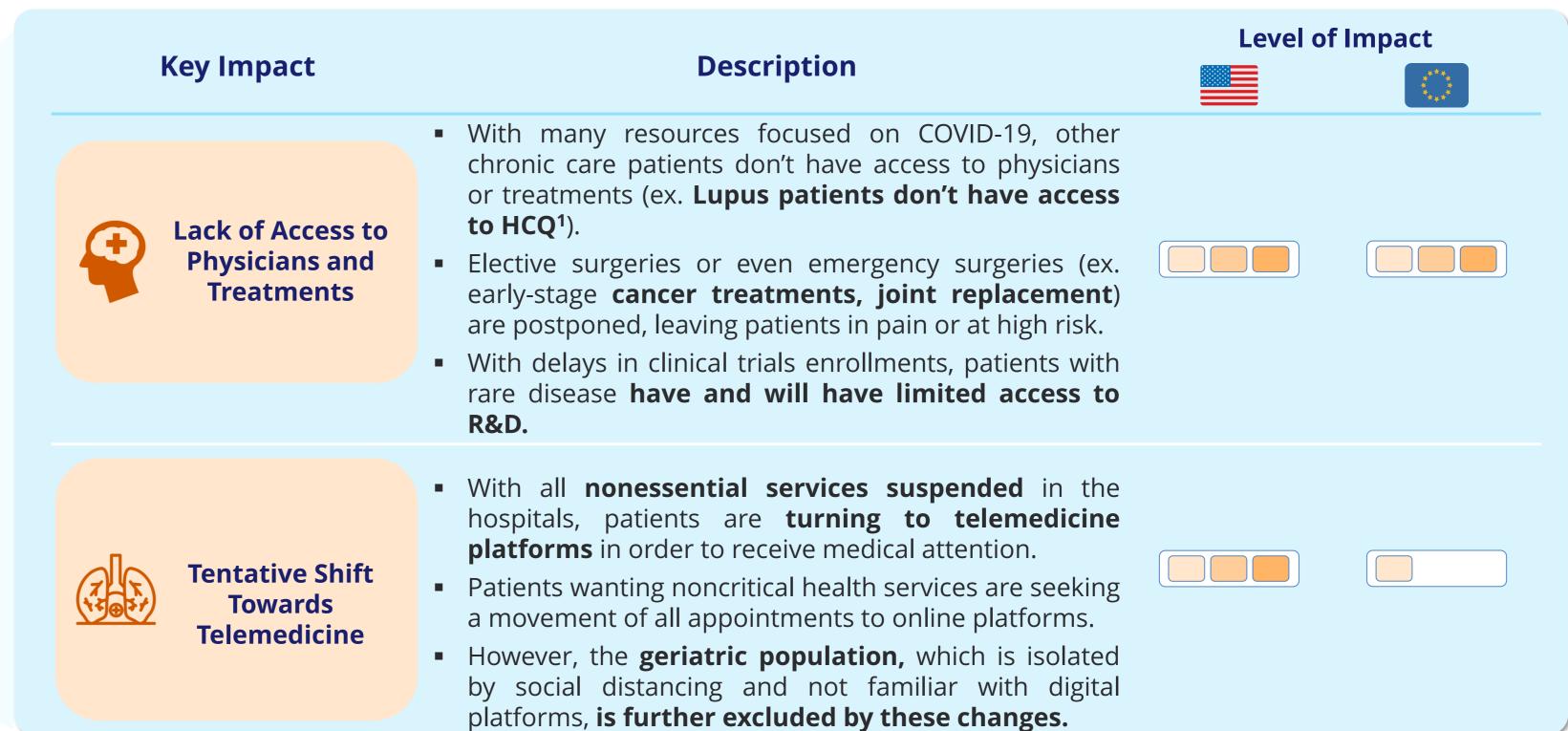
Non-COVID-19 Patients Face A Limited Access to Physicians & Treatments

Impact of COVID-19 on Healthcare Stakeholders

Non COVID-19 patients, particularly those with chronic conditions, struggle to access physicians, treatments, and clinical trials as resources are directed to COVID-19 patients. Patients may find some access to care through few immature telemedicine platforms.

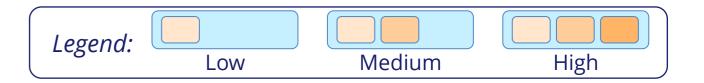


NON COVID-19 PATIENTS



Note: ¹Hydroxychloroquine.

Source: Carenity: https://www.carenity.com; Alira Health analysis and primary interviews



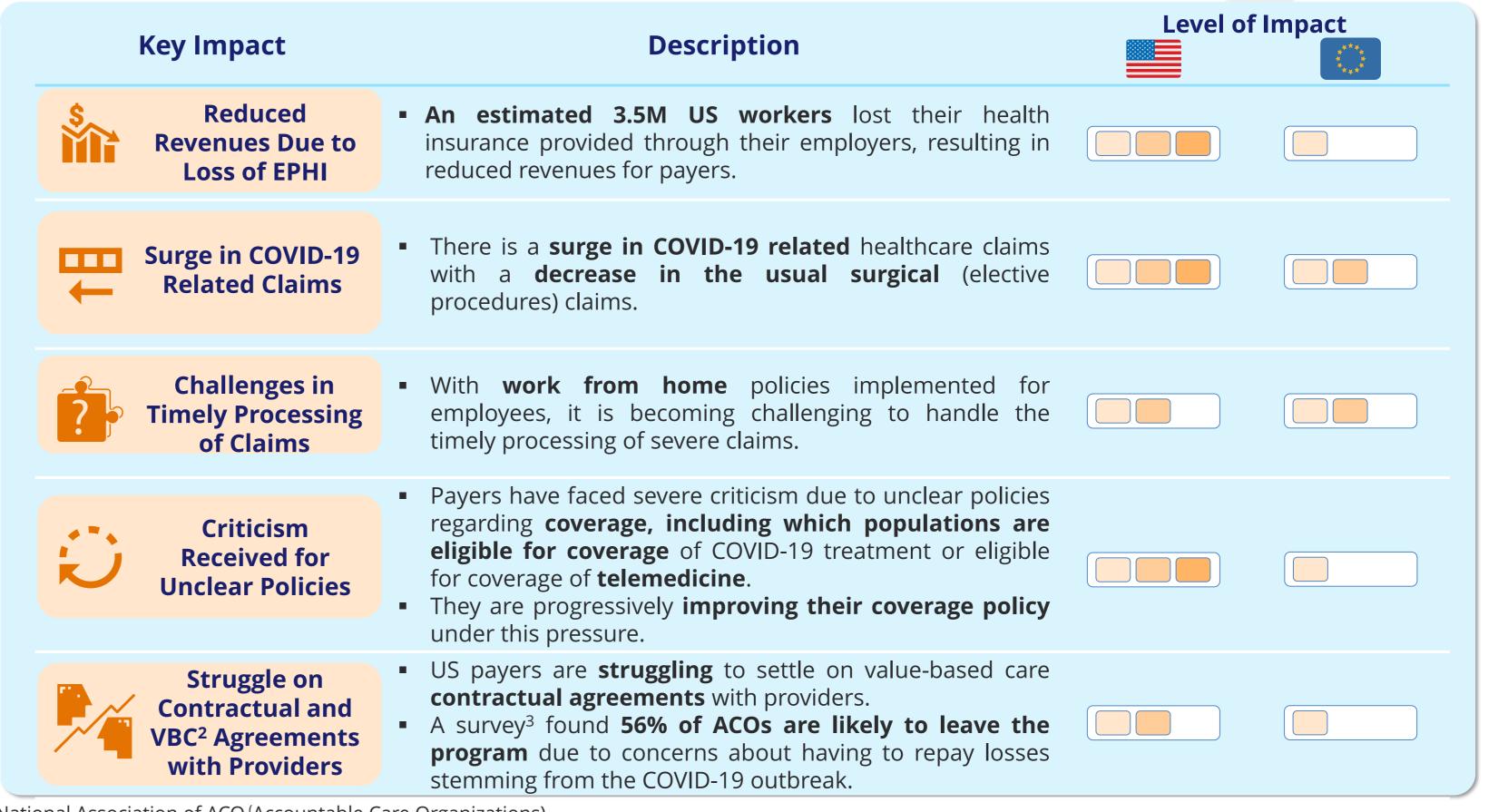


US Payers Have Been Adapting to Critics While Being Financially Impacted

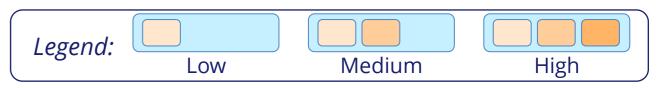
Impact of COVID-19 on Healthcare Stakeholders

With rising unemployment, US payers are facing a loss of enrollees of EPHI¹ and a shift in the type of claims received, with higher numbers of COVID-19 and severe claims. They also struggle to provide timely access to and clear policies about COVID-19 treatment.





Note: ¹Employer provided health insurance, ² Value based care, ³by the National Association of ACO (Accountable Care Organizations) Source: CMS; Alira Health analysis and primary interviews



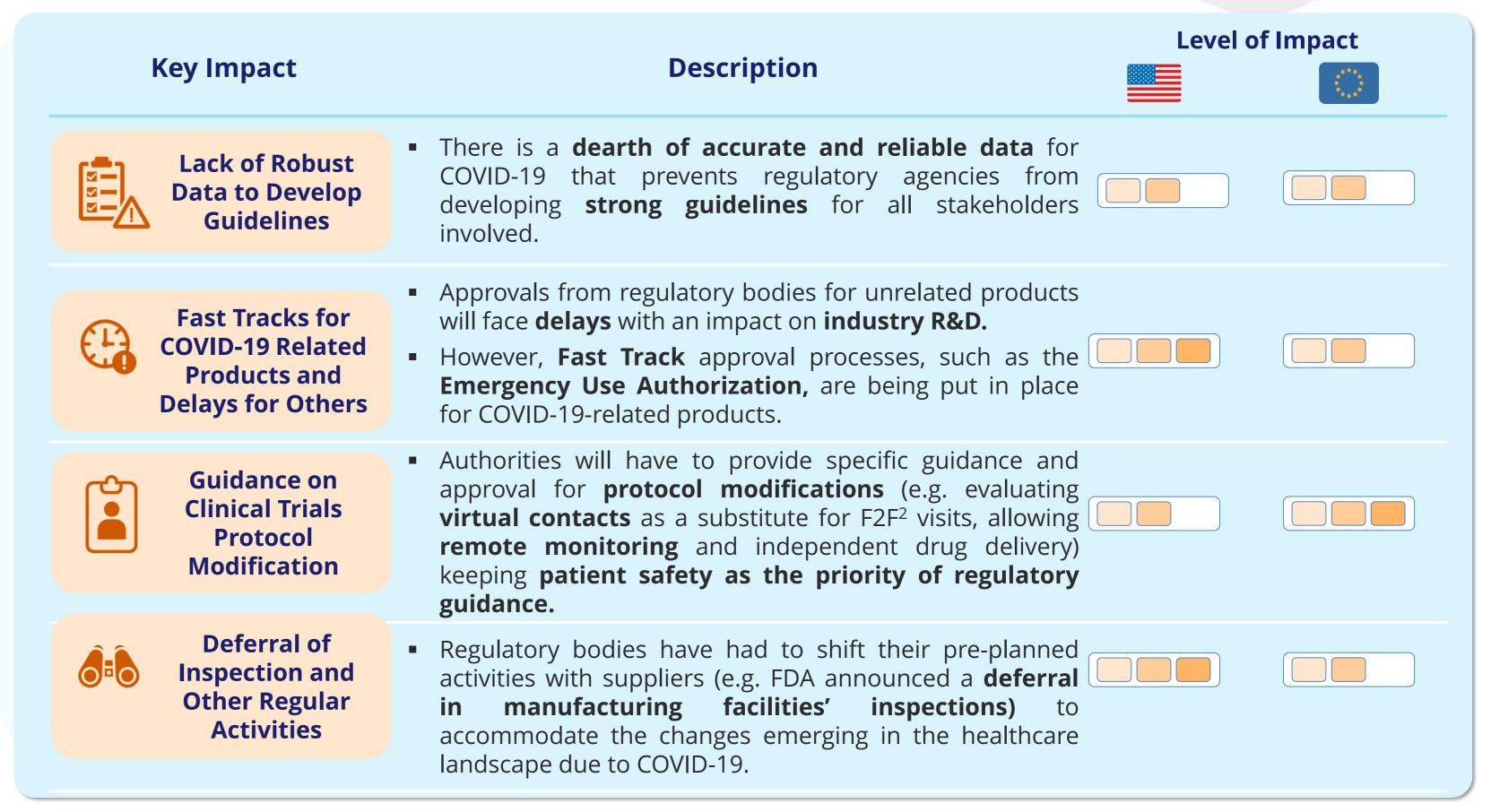


Management of the Crisis by Health Authorities Varies Widely by Country

Impact of COVID-19 on Healthcare Stakeholders

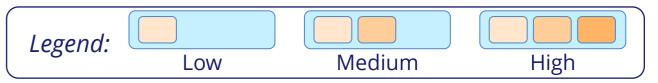
Healthcare authorities' reactions vary widely by country, both by timing and by strength. Compared to EU-5, the US has been slow in implementing social distancing and screening, but the FDA has surpassed the EMA in approval of emergency treatments.





Note: ¹Emergency use authorization; ²Face to face.

Source: EMA; ECDC; FDA; CDC; Alira Health analysis and primary interviews





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About Alira Health



In Short- and Medium-Term, Priority Will be To Address the Emergency,...

Key Trends and Emerging Needs

Foreseeable Trends	Level of Impact			Potential Impact on Stakeholders	
Foreseeable fielius	Short Term	Medium Term	Long Term	Potential impact on Stakeholders	
Until effective vaccines and treatments are approved, the focus will remain on the urgency of decreasing fatalities by acting on all the variables susceptible to flatten this curve				 Healthcare authorities, product suppliers and providers will continue working together to increase the supply of key medical products and adapt organizations to prevent the disease spread (e.g. social distancing, diagnostics, tracking, PPE²) of general population and treatment of COVID-19 patients (e.g. ICU drugs, ventilators, increased ICU capacity, measures to protect HCPs³ physical and mental health). The general and healthcare economies will be highly driven by interventionist measures that will slowly withdraw with the emergence of the treatment options but will change models profoundly. 	
Product suppliers, with product portfolios affected by the postponement of non-essential procedures, and non-acute providers might face a cash crunch, where some may disappear or be acquired				 In the short- and medium-term, early-stage and small to medium size product suppliers will have to focus on surviving by optimizing cash management. Investors will be more cautious; bridge financing and convertible notes postponing valuations for early stage companies should be favored. Several companies will become relevant M&A targets. Outpatient facilities such as ASC¹ will suffer financially while striving to retain their contracted HCPs³. 	
HCPs ³ especially in acute facilities are at risk of burnout due to high stress and long working hours in an increasingly burdened healthcare system				 Providers are taking small initiatives to set up a strong communication channel to reward and express gratitude to their HCPs³. Providers will have to implement processes and policies throughout the employment lifecycle to promote a well-balanced organization for their HCPs¹. They can also work with public and private payors to incorporate mental health coverage. Some governments like France are starting to consider veteran status for HCPs dying from COVID-19. Suppliers of products and services that could improve HCPs' workload and mental health would find favorable audience. 	
Note: ¹ Ambulatory Surgical Centers, ² Personal Protective Source: Alira Health analysis	e Equipment, ³ Healthca	re Professionals	Legend:	Low Medium High Services Product and Patients and General Payers Medical Authorities Providers Services Suppliers Population and Regulators	



...While Medium- and Long-Term Operations Will Have to Start Adapting...

Key Trends and Emerging Needs

Foreseeable Trends	Level of Impact			Detential Impact on Stakeholders
	Short Term	Medium Term	Long Term	Potential Impact on Stakeholders
Telehealth and other delivery, due to decreasing face-to-face interactions, could progressively enter the standard of care				 All stakeholders will have to support virtual healthcare delivery models, that decrease face-to-face interactions, by supporting reimbursement regulation and investments in telehealth, home care, and out-of-acute interventions. Providers and HCPs³ will have to integrate telehealth platforms and virtual care models (particularly for chronic patients) in their offerings and invest in the necessary services and equipment. Product suppliers could play a significant role in increasing patients' access to therapy, by partnering with patient advocacy groups, for instance, and could adapt their offer and commercial models accordingly.
The use of data science and digital technologies across the value chain, in order to accelerate drug development and commercialization and operational efficiencies, could increase significantly				 Product suppliers should look at developing digital capabilities across the entire drug development value chain either through partnerships with software solution companies or through potential inhouse data teams (e.g. Novartis formed alliances with Microsoft to leverage data and Al² in medicine discovery and development). Policymakers should create mechanisms or incentives to share data held by private or public payors, while also ensuring patient information is protected.
Postponed procedures will progressively resume, initiating with the most urgent ones and generate a rebound in relevant medical supplies where supply chain management will have to be adapted				 Product suppliers will need to assist relevant HCPs³ and providers (e.g. orthopedic surgeons) in planning and ensuring adequate products supply chain management. They should prioritize the most financially viable providers since smaller ASCs¹ will have largely suffered from the crisis. Providers will have to review their supply chain and inventory policies and innovate on contracts with suppliers and GPOs⁴.

Note: 1 Ambulatory Surgical Centers, 2 Artificial Intelligence, 3 Healthcare Professionals, 4 Group Purchasing Organizations Source: Alira Health analysis

Legend:





A









Product and Patients and General Payers Providers Services Suppliers **Population**





Low

...Generating New Business Models...

Key Trends and Emerging Needs

Foreseeable Trends		evel of Impact		Potential Impact on Stakeholders
roleseeable Hellus	Short Term	Medium Term	Long Term	
Acute and long-term care providers will progressively alter their organizations to be better prepared for infectious disease management				 There will be an increasing focus on infectious diseases management (and infection prevention at large) and increasing demand for related products and services (several providers in the US are considering building dedicated units). In the US, pharmacies should broaden their offering from focusing on general flu shots to management and education of infectious diseases, while in Europe, their role should be broadened by authorities.
Clinical trials management could profoundly be adapted to e-clinical trial models to limit face-to-face interactions and relieve patient sites				Sponsors and CROs¹ should try to incorporate elements of e-clinical trials and home monitoring by integrating smart and wearables devices, block chain technologies, POC² for monitoring, Al³ for results analysis and adapting commercial strategies accordingly.
Complications from neglected patients (particularly chronic patients) during the crisis are expected to worsen with time				 The COVID-19 crisis is altering access to care of patients suffering from chronic diseases (e.g. diabetes, lupus) and will generate a rise of related complications. Non-chronic patients, who have their surgeries suspended, (e.g. early-stage cancer, orthopedic surgeries) and high-risk patients for which chemotherapy treatments were delayed to avoid immunosuppression, will witness a deterioration of their health. Product suppliers with product portfolio (marketed or in R&D) treating these complications will be positively impacted.
Production and manufacturing sites that were expanded or reallocated to meet high COVID-19 related supply demand will be reallocated or closed				 Suppliers that expanded production capacity of COVID-19 related products will have to resume normal operations by returning to regular production or restructuring and their internal workstreams and operations.

Note: ¹Clinical Research Organization, ²Point-of-Care, ³Artifical Intelligence

Source: Alira Health analysis



Medical Authorities

and Regulators

Population



...And Anticipating Long-Term Effects of the Crisis. Key Trends and Emerging Needs

Foreseeable Trends	Level of Impact			Potential Impact on Stakeholders
	Short Term	Medium Term	Long Term	Potential Impact on Stakeholders
Disturbance of the current global production value chain, due to protectionism measures by governments, could make leaders reconsider the implications of having a globalized value chain				 Product providers that rely on raw material and components from international countries could try to localize their supply chain. Governments could implement policies to nationalize the production value chain. For example Japan has earmarked \$2.2 billion of its record economic stimulus package to help its manufacturers shift production out of China.
Non-healthcare players, such as Tesla and Dyson, who entered the healthcare market could maintain their healthcare position				 Several players with strong financial firepower entered the healthcare market to help curb shortages and will acquire knowledge of the industry. They might become new players in the long-term and inspire other companies with relevant capabilities, thereby creating a new type of competitor with strengths to monitor.
The long-term effect of COVID-19 on survivors' health are still unknown and pathologies could rise				 A 15-year follow up on SARS (2003) patients, published in Nature in February 2020, revealed long-term bone and lung consequences. The numerous COVID-19 survivors may develop comorbidities that remain unknown.

Source: Alira Health analysis





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A Practical Approach: Constantly Reacting While Anticipating Key Trends

Adaption of Business Models

The current lack of visibility requires organizations to be nimble and forward-looking to react and adapt their business models and optimize rebound. It is critical to understand key trends to anticipate underlying changes in fundamentals.

While the current situation requires flexibility and constant adaptations to navigate...

- 1
- Adjust Operations⁴ (non-exhaustive measures)
- Prioritize HR¹: employees' safety and constant communication
- Preserve cash when top line is negatively affected: delay non-essential spending (e.g. hiring, marketing, etc.)
- Monitor and apply fast to local and governments numerous relief programs and subsidies
- Collect your old A/R² and negotiate your A/P³
- Focus on current clients or larger prospects
- 2
- **Build and Update 12-Month Stress Test Regularly**
- Include several scenarios from worst to best with top line and cash burn assumptions to gain visibility on cash flow and take relevant operational measures
- Monitor current changes and anticipate underlying trends

...understanding major underlying trends and adapting business models will be key to optimizing rebound and keep or gain edge



Monitor news and events and anticipate underlying trends



Assess level of readiness by running capabilities gap analysis to address emerging trends



Adapt business models and strategies to anticipate the rebound and capture growth in the long term organically or through acquisitions

Note: ¹Human resources; ²Accounts receivable; ³Accounts payable, ⁴Particularly relevant for small to medium size companies with limited cash reserve, ⁵ Business Plan Source: Alira Health analysis.



Prioritizing and Thinking Beyond: Supply Chain Management and R&D

Adaption of Business Models

In the short term, suppliers should prioritize full supply chain assessment and constant monitoring to anticipate and find alternatives to weak links, re-allocate R&D resources, and minimize disruption in clinical trials. Digitization will be key for the longterm.



Operational Short-Term and Medium-Term

- Run full supply chain assessment and constant monitoring to anticipate weak links;
- Identify and contract alternative suppliers (e.g. API, components) including those outside of healthcare for less regulated products;
- Manage inventory obsolescence for products facing exceptionally low demand.



Strategic Medium Term and Long Term



Operational Short Term and Medium Term

- Consider full reassessment of the supply chain to mitigate risk of disruption and higher ensure (including coordination partial delocalization, secondary varied sourcing planning and digitization).
- Leverage and digitization to assess buying customers' **patterns** and anticipate demand cycles, and then optimize production capacity and distribution channels accordingly.

- Prioritize programs and reallocate resources to **COVID-19** related assets.
- Minimize disruption of ongoing clinical trials by working in tandem with study sites and CROs to delocalize monitoring outside of acute care (e.g. **Direct-to-patient model** or Home Health Care model).



Strategic Medium Term and Long Term



- Prioritize marketed and pipeline product portfolio by considering anticipated trends (e.g. infection focus on prevention, complications arising from chronic and other patients with lack of access to care) in order to optimize cash management.
- Review and consider innovative clinical trials models (e.g. e-Clinical Trials, models increasing patient engagement).

Source: Alira Health analysis.

Legend: Short Term Long Term





Prioritizing and Thinking Beyond: Sales & Marketing

Adaption of Business Models

Prioritizing launches and adjusting commercial models due to overwhelmed acute care and social distancing measures will be key in the short-term. Integrating AI and digitization and finding alternatives to face-to-face interactions will pave the way in the long-term.



Operational Short-Term and Medium-Term

Prioritize and delay new drug launches based on:

- **a. Indication** (e.g. drugs for immediately life-threatening diseases should be prioritize over chronic)
- b. Marketing requirement and targeted audience (e.g. drugs highly sensitive to sales details and education such as Neurocrine Biosciences' Ingrezza indicated in non-life-threatening disease, tardive dyskenia, might prefer to delay their launches)
- c. Route of Administration (e.g. drugs administered in through IV in healthcare providers vs. oral medicines taken home such as Sage Therapeutics' drug Zulresso, administered, may consider postponing)
- Plan virtual marketing and educational plans leveraging telemedicine, webinars, social media for HCPs and patients.
- Review sales and commercial models to decrease the need for face-to-face interactions and revenue sensitivity to traditional sales details and education.
- Sustain demand by increasing and investing in patient access to care through access programs including telemedicine services developed with payers, authorities, patients, providers (including pharmacies) and HCPs.



Strategic Medium-Term and Long-Term



- Develop models focusing on anticipating demand patterns including more variables that are linked to the whole value chain that leverages digitization and Al
- Develop commercial models substituting face-to-face **interactions** with elements of remote communication

Source: Alira Health analysis.









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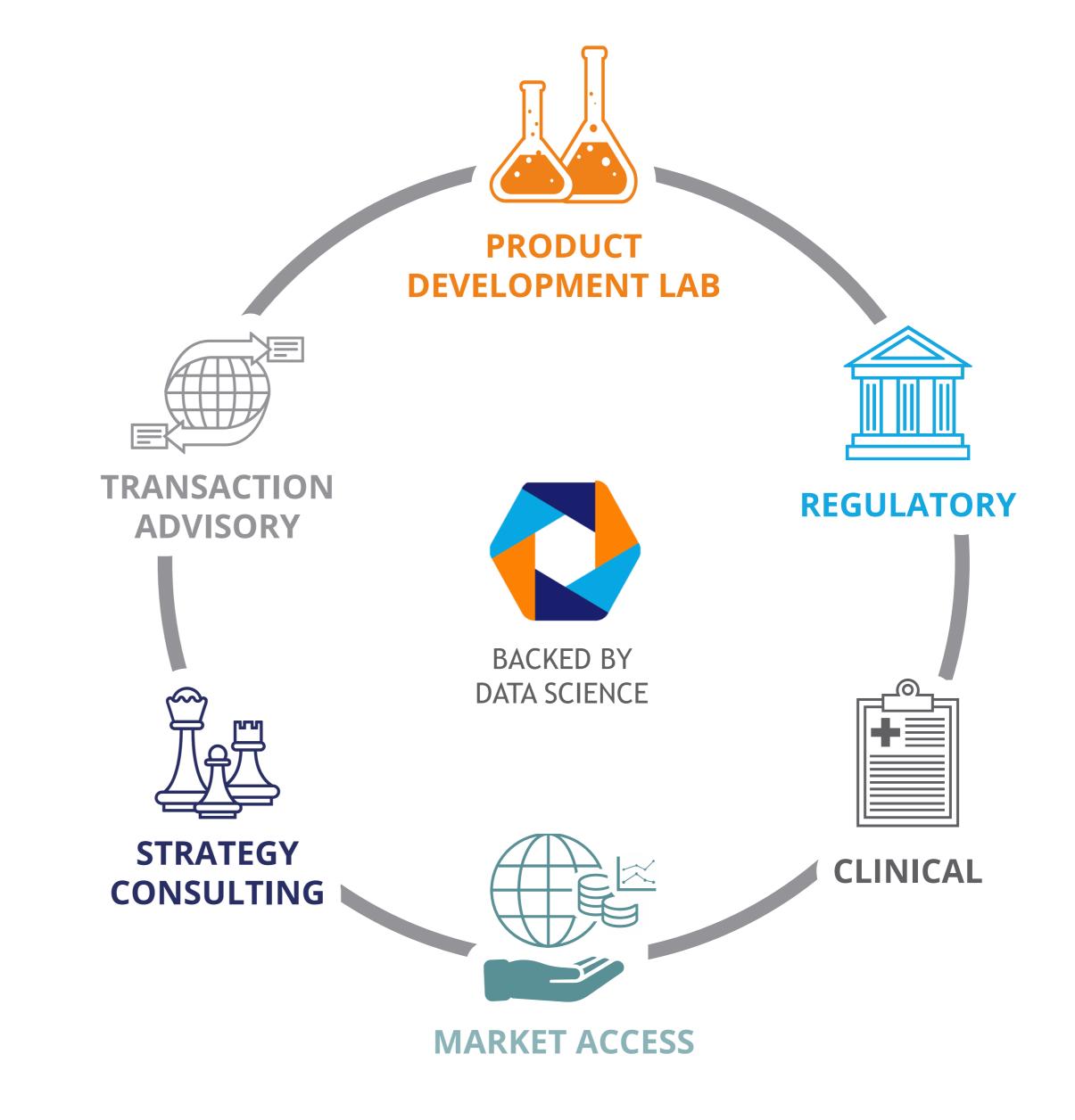
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About Alira Health



A Lifecycle Approach

We provide a variety of services under the same umbrella and with a holistic approach and clear vision: to support you and be of value to you at every stage of your corporate and product evolution.





Our Practice Areas



New Product Development

IP Development (StructuredIP™)

Incubation Of Breakthrough Technologies

Discovery Development Plan

In-VITRO and In-VIVO Testing



CLINICAL

Study Design And Protocol Writing

Site Selection And Feasibility

Investigator Training

Subject Recruitment & Retention

Data Management and Biostatistics

Trial Management And Clinical Operations

Pharmacovigilance



REGULATORY

Strategy And Roadmap Development

Submission Management

FDA Liaison Officer For Non-US Companies



MARKET ACCESS

Global Market Access, Pricing and Reimbursement Strategy

Mock Negotiations and Payer Consultations

Health Economics and Outcomes Research Strategy

Real World Evidence Strategy and Plan

Value Communication



STRATEGY CONSULTING

Market Opportunity Assessment

Indication Prioritization

Portfolio Management

Commercial / Vendor Due Diligence

Scientific And Clinical Due Diligence

Asset And Company Valuations

Commercial Excellence

Corporate Strategy Planning

Commercial Strategy and Go-to-Market Model Development

Integrated Launch Planning

Competitive Gaming



TRANSACTION ADVISORY

Mergers & Acquisitions Sell/Buy Side

In & Out Licensing

Strategic Partnerships

Capital Raise

Advanced Analytics and Real-World Evidence



We Will Keep Monitoring Trends and Go Deeper in Each Topic - Contact Us

About Alira Health and the Authors



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