



# How Will the Coronavirus Pandemic Affect the US Pharmaceutical Industry?

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## EXECUTIVE SUMMARY

The coronavirus pandemic is a global event. Pharmaceutical companies have been affected and will continue to see effects from this pandemic. This white paper is divided into three parts, with a focus how the coronavirus pandemic will affect the US pharmaceutical industry:

1. Summary of the Spreading Coronavirus Contagion
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Given the dynamic nature of this pandemic, please subscribe to the Axtria Research Hub (<https://www.axtria.com/axtria-research-hub-pharmaceutical-industry/>) for updates to this white paper and related postings.

## 1. Summary of the Spreading Coronavirus Contagion

The passing of just a few weeks has resulted in a dramatically different public health and economic outlook on the global landscape since our initial publications on the coronavirus pandemic. The lead author published two articles in early March 2020 about the growing possible effects on the pharma industry before others finally realized the potential dangers and publicly produced articles on the topic.<sup>1,2</sup> The rapid spread of the coronavirus contagion has resulted in these dramatic changes from the time of our original writing and are briefly summarized below (not an exhaustive list, with additional changes happening daily):

- 1) **The coronavirus is now a pandemic, as declared by the World Health Organization (WHO).** Italy, Spain, and US lead the world in the number of deaths caused by the coronavirus, with the US having the most cases. New York City has become the epicenter of the coronavirus epidemic in the US.
- 2) **Countries have instituted travel bans across borders and restricted movements within respective countries to contain the spread of the virus.** These policies have brought a significant economic cost with direct consequences to the pharma industry.<sup>3</sup>
- 3) **Countries have established task forces to deal with this growing crisis within their respective borders, with the pharma industry playing a key role in finding solutions.**
- 4) **Countries and localities have established "social distancing" and "stay-at-home" mandates to slow the virus' growth.** These mandates have also resulted in physician offices and hospitals being banned by

industry representatives from entering which directly affects pharma commercial operations. One key question is whether these access-restrictive policies will persist after the pandemic dissipates.

- 5) **Supply chain disruptions are creating drug shortages in older generics, especially in the area of antibiotics, that are reliant on China for key active pharmaceutical ingredients (APIs).** US public policymakers have questioned the wisdom of being so dependent on China in key industry areas that are of national strategic interest, and in particular, pharmaceuticals. The future trend will be to pull back pharma production toward the US.
- 6) **A coronavirus-induced global recession is now virtually certain.** The question now is whether the US will experience a "technical recession" where gross domestic product (GDP) contracts for two consecutive quarters and then quickly rebound (V-shaped), or will we experience a longer and deeper recession (U-shaped)? Opinions are changing that a recession is now likely to be more severe and last longer than originally thought. These economic effects will have significant ramifications on the pharma industry. See recent publications on whether the pharma industry is prepared for the next "Great Recession."<sup>4-5</sup> It is the contention of this author and Ph.D. economist that the pharma industry is not prepared for a severe and long recession.

- 7) **The recently passed Congressional \$2.2 trillion fiscal stimulus package along with \$4 trillion in monetary expansionary policy by the Federal Reserve will dampen but not eliminate a US recession from happening.** Pharma companies should still expect recessionary effects to impact drug demand, especially for those drugs that have high out-of-pocket costs for patients.
- 8) **Much uncertainty remains about this coronavirus pandemic and its long-term effects.** For example, will the following coronavirus-related events happen: a) the virus dissipates come warmer weather or becomes a seasonal event like influenza, b) the virus does not mutate, making a single vaccine and a medication regimen easier to combat COVID-19, or it mutates making prevention and caring for COVID-19 much more difficult, c) how long do people develop an immunity to this coronavirus, and d) how much will society be prepared for the next coronavirus outbreak? Information on these and other questions will have ramifications for the pharma industry.

The conclusion from this coronavirus summary is that pharma companies face significant ramifications on their business, requiring a change in assumptions, thinking, and decisions going forward affecting sales, marketing, and managed markets/market access strategy and operations.



## 2. Coronavirus Pandemic Effects on the US Pharmaceutical Industry

This section provides a structured list of effects on the pharma industry classified in the following areas: (1) demand-side, (2) supply-side, (3) marketing/brand strategy, (4) non-personal promotion, (5) sales force strategy, (6) sales force operations, (7) managed markets/market access, (8) medical affairs, and (9) role of analytics. This is a non-exhaustive list and is likely to change as events unfold, resulting from the spread or control of the coronavirus pandemic and/or policy reactions and their effects on the outbreak. The last item to be reviewed, the role of analytics, is important to determine how pharma companies can limit their exposure and risk from similar “black swan” future events.

### 2.1 Demand-Side

The demand-side effects from the coronavirus can be broken down into the following impacts, with suggestions on how to measure such effects noted:

- 1) **The coronavirus pandemic directly decreases drug spending through the creation of a global recession.**<sup>4,5</sup> The occurrence of a US and global recession is now virtually certain. The cited references provide a detailed empirical analysis road map that can be undertaken in how the deterioration in economic conditions relate to decreases in drug demand (i.e., effects from unemployment and therefore loss of drug coverage, income and wealth effects, and governmental actions to shift drug demand away from branded drugs and biologics to generic drugs and biosimilars). Drug-specific models can be constructed at the country-level (for smaller countries and/or where granular prescription data does not exist) or at the local metropolitan statistical area (MSA) in the US. A more granular analysis is better since sales, marketing, and managed markets/market access are executed at a regional/local level. Prior analysis from the Great Recession showed the pharmaceutical industry was not immune from macroeconomic effects. The effects varied by drug (depending on the patient socio-economic demographics) and by region/locality (since recessionary effects are uniformly distributed across a country). This means analytics are needed to determine the right mix of commercialization activities appropriate



for each drug and by geography. Predictions can be made from inferential models on the financial drag caused by recession effects and how management control variables can be used to mitigate those effects.

2) **Analyses of the “Great Recession” of 2007-2009 through the economic variables noted in 1) revealed the following effects and could very well be replicated by a coronavirus-induced recession, especially if it is deeper and longer than expected by economists:**

- a) Higher patient sensitivity to out-of-pocket (OOP) cost.
  - b) Reduction in drug compliance and adherence (e.g., patients skipping daily-dose medications for chronic conditions to taking every other day, discontinuation of therapy). This means health outcomes could worsen in areas with a severe recession as beneficial drug therapies are either discontinued or not properly taken.
  - c) Greater brand-to-generic and biologic-to-biosimilar substitution.
  - d) Patients with multiple conditions making suboptimal choices on which drugs to continue taking (e.g., will likely focus on continuing drug therapy for symptomatic conditions while stopping medications for asymptomatic conditions like diabetes, hypertension, dyslipidemia, etc. and stop some therapies due to cost considerations).
  - e) Greater utilization of mail order relative to retail as a way to reduce OOP cost and avoid going to the pharmacy.
  - f) Greater demand for samples from physicians.
  - g) Greater enrollment in Patient Assistance Programs (PAPs).
  - h) Patients moving toward high-deduction health plans with poor drug coverage that will raise the OOP cost with adverse compliance and adherence effects.
  - i) Greater geographic variations in drug demand utilization as the effects of a recession are not spread evenly around the country.
  - j) Movement of patients from commercial to Medicaid plans if the economic effects of a recession are deep and long.
- 3) **Policies enacted as a result of the coronavirus, causing a reduction in sales rep activity, in order to reduce personal contact, and the shift by companies to less effective channels, could in turn reduce sales.** Such effects can be even more pronounced if seen during the launch phase of a drug. There is a long and well-established body of pharma

promotion-response modeling literature on how changes in sales rep activity affect sales. We also know from historical empirical industry evidence that new drug sales uptake in the beginning months of launch is a strong predictor of long-term sales. These two effects can be brought together to determine the longer-term sales implications if the outbreak persists.

## 2.2 Supply-Side

The supply-side effects from the coronavirus can be broken down into the following impacts, with the severity of the outbreak dependent on the length and geographic breadth of the contagion:

- 1) **The coronavirus has disrupted the global supply chain of active pharmaceutical ingredients (APIs) developed in China and sent to other drug companies.** Indian generic manufacturers are particularly dependent on raw materials from China (about 70% according to one reference).<sup>6</sup> Older generics, especially in the antibiotics area in the US, are also affected. The global implications of supply chain disruptions starting in China affecting US and European drug companies are still unknown. Companies are likely to buffer any effects through stockpiling and finding alternative supplies. Confidence could be weakened in the longer-term stability of the Chinese supply chain system to deliver on pharma company needs. Events like the coronavirus, if repeated with other outbreaks and “black swan” shocks, rather than being seen as an isolated situation, could cause companies to seek out alternative and more reliable sources of APIs, thus creating longer-term adverse effects for China. This could mean opportunities for other countries to fill in the gap left by companies looking beyond China as a more reliable course of materials, dampening adverse economic effects. This redundancy might bring about longer-term beneficial effects by not being so overly reliant on China for APIs.
- 2) **Lawmakers in the US are considering legislation to require certain industries vital to the national interest, like biopharmaceuticals, to be domestically produced and not rely on China.** Disruptions in the supply chain for APIs have demonstrated a clear risk to domestic manufacturers in the areas of pharmaceuticals, medical devices, and protective equipment. Pharma companies may need to search for new sources to obtain key APIs in order to meet legislative requirements.
- 3) **The coronavirus could adversely affect the conduct of current clinical trials in China, with greater effects, the longer and more geographically spread the outbreak becomes.**<sup>7</sup> A number of international pharmaceutical companies have heavily invested in China in the hopes of conducting less expensive clinical

trials, obtaining access to large patient populations, and serve an ever-growing Asian market.<sup>7</sup> This may also cause pharma companies to reconsider long-term investment plans to leverage China as a major source to conduct clinical trials. Again, this adverse effect on China could mean a positive effect elsewhere, reducing any future risk by geographically spreading the conduct of clinical trials. The system would become less susceptible to a shock in any one country, like China. The length of the outbreak, how China recovers from it, the degree to which China modernizes the drug and healthcare sector, and the confidence from investors that such shocks like the coronavirus will be minimized in the future, will determine the trajectory of future foreign drug company investments.<sup>7</sup> This is likely the result of a pandemic scenario. However, any longer-term effects from the coronavirus are still uncertain at this time.

- 4) **The outbreak could also affect the launch of testing on new experimental drugs, especially those developed from within the Chinese pharmaceutical industry, delaying efforts for China to supply drugs for its own market and globally deliver against the competition.**<sup>7</sup> The effects outlined in this item and in 3), if the outbreak continues, could mean significant effects in the longer-term for China to develop its own pharmaceutical industry and compete against global companies.<sup>7</sup> A pandemic situation may also shift R&D priority efforts toward addressing future virus pandemics, such as finding vaccines to handle future epidemics, and thus “crowd-out” investments on developing drugs for other conditions needed by society. Similarly, a pandemic would exert significant pressure on global healthcare systems, affecting the supply of medical care for other conditions, which could result in negative spillover effects on the utilization of drugs via demand-side effects.

### 2.3 Marketing/Brand Strategy

Pharma companies may reevaluate their marketing/brand strategy due to the coronavirus pandemic.

- 1) **Brand Segmentation.** The coronavirus should not affect brand segmentation if physician-based. HCPs who were valuable before the coronavirus, will remain valuable post-coronavirus pandemic, provided no changes occur with managed care plans that affect HCP prescribing abilities and patient access. However, the coronavirus pandemic, if long-lasting, could affect patient-based segmentations. Patients who are older and with various co-conditions, like cardiovascular disease, diabetes, respiratory conditions, and immune-deficiency diseases are at greater risk of contracting COVID-19 and having a severe episode. Patient-based segmentations that are designed to affect health

and economic outcomes could be impacted if drug side effects include weakening the body’s ability to fight disease, making people more susceptible to the coronavirus.

- 2) **The Go-To-Market (GTM) strategy of reaching customers (HCPs, patients, caregivers, managed care decision-makers, pharmacists, etc.) may very well vary due to interaction restrictions caused by the coronavirus.** Any changes here will affect marketing-mix analysis to determine resource allocation across channels for brand profit maximization.

### 2.4 Non-Personal Promotion

Sales rep access restrictions to HCPs may cause a shift in promotion-mix toward greater use of non-personal promotion channels.

- 1) **Direct-to-consumer (DTC) advertising (through all mediums) will rise in importance as direct sales force detailing is curtailed and patients spend more time at home practicing social distancing.**
- 2) **Direct-to-patient (DTP) advertising may see less effectiveness as patients avoid going to the doctor for fear of catching the coronavirus, or may find hospitals overburdened with coronavirus patients.**
- 3) **Journal advertising is another channel for possible increased usage to reach HCPs as direct sales force activities are diminished.**
- 4) **Digital, social media, and search engine channels will see a surge in usage as an important way to reach all customers, especially as people spend more time in their homes practicing social distancing.** One challenge for an individual pharma company will be how to have their own digitally-sent messages stand out from others. What will cause an HCP to click on an email from a specific sales rep while not responding to others? Sales rep-HCP relationship-building, developing trust, and demonstrating that all sales calls deliver value that will help the treatment of patients will be critical differential factors in deciding which messages get read.
- 5) **Disease Management Programs will be even more important now to educate patients on the importance of maintaining compliance and adherence of their drug therapy.**
- 6) **Pharma companies are likely to see an increase in sample orders from physicians as they look to offset OOP costs for their economically-depressed patients.**

## 2.5 Sales Force Strategy

Sales force strategy involves the determination of sales force size, structure, allocation, targeting quality, and sales rep-HCP relationship disruption and their commensurate effects on brand/portfolio revenue and contribution. Two key processes, after the development of each brand segmentation and strategy, that could be potentially affected by the coronavirus pandemic.

1) **Sales Force Optimization (SFO) Outcomes.** The coronavirus should not affect SFO optimization outcomes (e.g., sales force size, structure, allocation, targeting quality, and sales rep-HCP relationship disruption) and all resulting financial outcomes, if the pandemic is viewed as a short-lived event. However, SFO outcomes could be affected if the following effects occur:

- a) A longer-term pandemic happens that does not dissipate during the warmer months.
- b) The virus reappears during the following year.
- c) Individuals who contract the virus do not build up any long-term immunity.

- d) The virus mutates creating essentially a new outbreak (although evidence shows that mutations of viruses are generally weaker than the original form).
- e) Sales rep access restrictions toward HCPs continue in place, affecting sales rep productivity assumptions, and the GTM strategy approach to advance brand commercialization.
- f) The effects of a coronavirus-induced recession are very long-lasting affecting drug demand that could impact long-term sales force planning.

2) **Sales Force Scenario Planning.** All rigorously-done SFO processes have a scenario planning process, looking forward to possible future states that could significantly alter the sales force design and concomitant financial outcomes. The coronavirus is one such event that could enter into future scenario planning outcomes.

SFO processes are generally 3-4 years forward-looking. Therefore, companies will have to decide whether the coronavirus is something that still may exist over that future time frame in a significant way to affect sales force design.



## 2.6 Sales Force Operations

Sales reps now are unable to see and detail HCPs, either due to pharma company decisions not to go into physician offices for fear of contracting or spreading the coronavirus, and/or decisions by healthcare systems, group practices, and hospitals to bar industry representatives from entering their facilities. These decisions have various knock-on effects on sales operations, as described below, in the order in which they occur.

- 1) **Territory Alignment (TA).** Companies should not make changes in their TA design unless the effects from the coronavirus are deemed to be more longer-term and permanent. Aside from internal disruptive effects from doing a major TA change, they disrupt crucial sales rep-HCP relationships that can have longer-term adverse sales consequences.<sup>8</sup>
- 2) **Call Planning (CP).** Direct sales rep promotion is no longer possible. Companies are likely to shift to eDetailing, telesales, and digitally-provided video sales calls as ways to provide physicians with needed drug information. The shift to specialty medicines, especially in the area of oncology, means these channels are important in the dissemination of needed scientific and clinical information for HCPs and their patients.<sup>9-12</sup>

- 3) **Objective Setting (OS) and Incentive Compensation (IC).** Pharma company OS and IC plan designs are outcomes-based, while tracking activity by sales reps designed to affect sales are consistent with achieving sales force strategy goals. Tracking activity is also necessary as a diagnostic tool to determine why sales goals have not been met. Short-term effects on IC payouts can have longer-term effects through impacting baselines that determine future payouts. Companies have to decide how to address the following IC-related issues. These issues can have short-term (1 quarter), medium-term (2-3 quarters), and long-term (12-24 months) responses, depending on the length of and effects from the coronavirus pandemic. An informal survey of companies is revealing a wait-and-see attitude before making more dramatic changes that have longer-term ramifications:

- a) **Pay-on-the-target-goal** companies traditionally make sales reps whole when such short-term exogenous shocks hit, such as a natural disaster, and unexpected delay in the launch of a major drug, or significant and immediate negative changes in sales rep access restrictions. Anecdotal evidence suggests that several biopharma companies have already signaled paying “at target” for some, if not all, of 2020.





- b) **Adjustments of goals/targets** could be in order, but only if the decision is made that effects from the coronavirus will be more longer-lasting. This decision would affect sales force strategy outcomes on size, structure, allocation, targeting quality, and sales rep-HCP relationship disruption, and their commensurate effects on brand/portfolio revenue and contribution.
- c) **Adjustment of pay period/cycle duration** will depend on the duration of the coronavirus event.
- d) **Minimum pay guarantee/draw** is already built into the IC design (e.g., 80% of target is the minimum payout guarantee/draw). The decision by the pharma company whether a sales rep gets the target versus minimum payout could be determined by the extent of call restrictions beyond the control of a sales rep in a specific area relative to the nation (i.e., target goal payout for reps with more stringent call restrictions versus minimum payout for reps in more open access areas).
- e) **Regional IC strategies in the case of localized impacts** are an extension of the previous dependent on geographic variations in call restrictions.
- f) **Simulation of impact on current period and future period goals/payouts and IC budgets** should be undertaken to determine the longer-term consequences of any short-term decisions.
- g) **Effect on base IC as well as on sales contests and sales program incentive funds (SPIFs)** need to be reevaluated. It is the opinion of the lead author that the cost of having sales contests is greater than their benefit and should be avoided and/or carefully structured to minimize unintended effects. Nevertheless, brand teams within pharma companies like instituting them for more parochial reasons.<sup>13</sup>
- h) **Effect on annual awards** is an important consequence of determining whether certain reps have been more severely disadvantaged due to call limitations in their territories relative to other reps. This means an objective data-driven criterion needs to be decided upon that can differentiate between varying environments caused by the coronavirus. For example, hospitals may be more restrictive in allowing industry access than other areas. Thus, sales reps with drugs used in the institutional setting may be more disadvantaged than sales reps with drugs used in more open office-based settings.
- i) **Effect on specific brands and/or portfolio-level IC components** is a direct consequence of the varying degree to which sales reps have access to those settings where physicians use different drugs (e.g., office-based versus institutional-based settings, or primary care versus specialty care settings), as described in the previous point. Leveraging prior approved sales response relationships by each brand team can be used to determine the effect on brand and portfolio sales and contributions caused by restrictions on call activity due to the coronavirus.
- 4) **Sales Reporting (SR) and Sales Management (SM).** The effects of call limits caused by sales rep access restrictions need to be communicated properly in the context of how they affect each rep. Call achievement, call plan adherence, and resulting sales must be viewed by the extent of access restrictions at the territory level, and to the extent, they are caused by coronavirus-induced decisions at the local level. It is assumed that the call plan and target call plan adherence was designed to achieve sales goals as driven by the sales force strategy outcomes from the sales force optimization process. The question, and thus additional data is needed, to determine to what extent did the ad hoc coronavirus pandemic event prevent reps from achieving their sales goals.
- 5) **Sales Force Productivity Assumptions for the Next SFO Process Cycle.** This crucial step is used to determine what assumptions, based on actual execution, will be carried over to the next SFO process cycle. Sales execution assumptions will determine whether coronavirus-induced limits that reduced call productivity should be carried over to the next SFO cycle or not. This depends on the length at which decisions made at the local level to limit call activity are maintained or discontinued. It is critical that pharma company sales operations gather intelligence from their own field force on local decisions and matched against third-party data that track access restrictions.

### 2.6.1 Other Direct Personal Promotions

There is a range of other personal promotion channels that may be affected by the restrictions of industry representatives from seeing HCPs due to social distancing and travel restriction mandates. Those effects can be seen in the following channels:

- 1) **Lunch & Learns at HCP Offices.** These types of interactions will be banned and/or severely curtailed. An alternative may be to deliver the "lunch" and have the "learn" via video conference.
- 2) **Presentations by Key Opinion Leaders (KOLs).** These important presentations from respected medical peers may also be curtailed. Information will have to be delivered via electronic and digital means.

- 3) **Delivery of Printed Materials.** All printed materials that may have been delivered in-person will have to be sent electronically. Follow-up questions will have to be gathered via the call center or through electronic video interactions.
- 4) **Dinner Meetings.** HCPs may be banned and/or curtail these types of interactions outside the office.
- 5) **Meetings at Medical Conferences.** Travel restrictions and cancellation of conferences will curtail this type of interaction.
- 6) **Customer Solutions.** Pharma companies have a group that responds to HCP questions. These solutions may have to be delivered via call centers, email, video/digital channels instead of in-person visits. Furthermore, sales reps who find their calls are infeasible to be delivered, may divert that time toward working on customer solutions or internal marketing questions for the brand teams. This is a temporary activity if the coronavirus is seen as a short-term event.
- 7) **Contract Sales Organizations (CSOs).** The coronavirus pandemic and resulting policies instituted to ban sales rep interactions with HCPs may cause pharma companies to revisit the use of having a “core” sales force group, supplemented by CSOs that can be scaled up or back as events warrants. A permanent sales force is a fixed asset over a given time period that is not easily adjusted. CSOs can be used as a risk-reduction asset that is more easily scalable as events warrant.

### *2.6.2 Indirect Sales Channels*

The use of indirect sales channels will rise in importance as direct sales force activity is banned or severely curtailed. Telesales, eDetailing, detailing via digital video delivery, etc. will be essential to provide HCPs with necessary drug information for the treatment of their patients.

### *2.6.3 Service Representatives*

Pharma companies have turned to service representatives to provide an HCP office with a variety of non-product information for the benefit of patients, such as enrollment in disease management programs, updates on managed care, availability of prescription coupons, access to a patient assistant program. This valuable information will have to be delivered via electronic means.

### *2.6.4 Approval of Samples*

The banning of sales reps from visiting HCPs will mean sampling will have to be done entirely online, from signing authorization to delivery. Another consequence of sales reps not visiting the sample closet is not being able to see the samples provided by other company reps.

### *2.7 Managed Markets/Market Access*

Managed markets/market access from the coronavirus pandemic will experience the following effects, all seen during the Great Recession of 2007-2009:<sup>4-5</sup>

- 1) **Individuals losing their health insurance and associated drug coverage as people are laid off due to mandated business closures.** We know from experience from the Great Recession that prescription growth was adversely affected by people losing drug coverage. Subsidies provided by the Obama administration to pay for a significant portion of extending the Consolidated Omnibus Budget Reconciliation Act (COBRA) insurance coverage was not sufficient to offset negative effects on prescriptions decline due to people not being able to afford their medications.
- 2) **Significant declines in income (due to rising unemployment and financial losses) and wealth (due to sharp declines in financial market indices) will bring increasing affordability issues for acquiring drugs, as seen during the Great Recession.** Market access issues will increase as an impediment to branded drug and biologic growth as the economic situation deteriorates. Patients reacted during the Great Recession by shifting their drug use toward generics wherever possible, but also and more ominously stopped taking prescriptions (especially for critical asymptomatic chronic conditions) or reduced their adherence (e.g., by taking once-a-day medications every other day). The recently passed fiscal stimulus package and expansionary monetary policy by the Federal Reserve will likely have some effect on reducing individual drug affordability/access problems. However, economic issues will linger, especially if business shutdowns continue and as the economy takes time to recover from a coronavirus-induced recession.
- 3) **Health insurance plans (both private and public) will further control HCP prescribing and patient drug utilization away from branded drugs and biologics and respectively toward generics and biosimilars.** The enactment of increased controls was seen during the Great Recession. Federal and state authorities will also tighten controls on Medicare and Medicaid drug utilization away from branded drugs and biologics.



- 4) **Pharma companies must be prepared to use coupons to mitigate affordability and market access issues faced by patients.** Analytics and artificial intelligence/machine learning (AI/ML) can be used to predict which geographic areas are likely to see the greatest adverse economic effects due to the coronavirus. Like during the Great Recession, adverse economic conditions were not uniformly distributed around the country. Sales and marketing must recognize these varying patterns in their messaging.
- 5) **Pharma contracting efforts will be critical to reducing drug co-pays for patients and affordability issues.** However, the downside of this approach to using higher rebates and discounts via contracting efforts to reduce patient co-pays will also decrease net prices and thus, company profitability. This effect has longer-term implications on the reinvestment of lower profits into R&D, affecting future pipeline productivity.
- 6) **Pharma companies will likely see an increase in applications for drug access through patient assistance programs (PAPs).** Pharma companies should revisit the experience during the Great Recession for patterns that emerged regarding higher enrollments in PAPs.

### *2.8 Medical Affairs*

Industry representatives from medical affairs will likely be affected by access restrictions to see HCPs in office-based settings as well as hospitals in similar ways to sales reps. Medical affairs representatives provide valuable peer-to-peer discussions with HCPs on a range of scientific, medical, and clinical issues that cannot be disseminated by sales reps. Sales reps often call upon medical affairs to provide more in-depth and peer-to-peer discussions in response to questions raised by HCPs. They can also provide information and engage in discussions on off-label topics when raised by the HCP and are crucial for pre-launch discussions in sharing clinical trial data. This information dissemination will have to move online if person-to-person conversations are curtailed and coordinated with the sales rep, especially if the discussion originated from a question raised with the sales rep.



### 2.9 Role of Analytics to Mitigate the Effects from Future “Black Swan” Events

True “black swan” events by their nature are difficult to anticipate. However, it does not mean a pharma company is powerless to mitigate effects from a surprise event like the coronavirus. This latest contagion strongly demonstrates the need for pharma companies to invest in creating a culture of analytics to prepare themselves for the risks and uncertainties inherent in operating a global pharma company. A few important analytics steps can be taken by companies to reduce the instability and uncertainty caused by such “black swan” disruptions:

- 1) **Engage in simulations and wargames to map out the possibility of surprise events and their potential effects.** This means creating a culture of “blue-sky” or “possibility” thinking beyond normal internal group thinking and traditional boundaries of thought. Going beyond traditional boundaries of thought is likely facilitated by creating interdisciplinary teams and processes to foster new thinking, having the right incentives and culture for people to generate new ideas, and having the right people who are open to new thinking.
- 2) **Attach risk coefficients and the nature of uncertainty to future events that could bring significant harm to the company.** This means having a “risk register” of potential events, attribute a likelihood of occurrence, and attach a degree of company impact to each event. Future events can then be prioritized for continued monitoring and contingency plans developed for possible implementation.
- 3) **Create robust empirical platforms to detect and measure quickly the existence and potential effects of these unexpected events when they occur.** This means the applications of AI/ML can be very useful here as identification and prediction mechanisms.
- 4) **Generate robust empirical models that can measure the effectiveness of mitigation efforts through business policies implemented if and when that future event does indeed occur.** Creating a library of past empirical models applied and their usefulness would be very helpful. In addition, having a culture of experimentation is essential to develop new ideas for implementation.
- 5) **Translate empirical insight on the nature and extent of effects into actions based on empirical-driven business decisions.** This means having a strong operations orientation and trust to execute plans based on analytics.
- 6) **Develop a well-designed data architecture to supply the analytical engines necessary to do the above functions.** This means eliminating data silos through integration since interdisciplinary analysis is likely required, meaning having data structures that cut across traditional organizational boundaries.
- 7) **Promote an organization-wide culture of analytics used in all decision-making that is strongly advocated by senior leadership.** Pharma companies that have a strong and robust culture of analytics will more likely successfully navigate through these challenging and uncertain times than those that do not.

### 3. Conclusions

#### 3.1 Action Steps Companies Should Take

The following are action steps companies should take now to protect themselves against the effects of the coronavirus pandemic. The action steps are organized according to the following time frames looking forward, and are dependent on the extent of the coronavirus pandemic and policies still in effect in response to the outbreak: (1) short-term (1 quarter), (2) medium-term (2-4 quarters), and (3) long-term (12-24 months). Lastly, special remarks are provided for responses on IC issues.

##### 3.1.1 Short-Term

- 1) **Conduct ROI analysis or update ALL channels outside of sales rep promotion.**
- 2) **Develop a “live” report-card on channel impact.**  
Hold-out geographies, specialties, etc. and run impact/ROI analysis.

##### 3.1.2 Medium-Term

- 1) **Make investments into data management to ensure ALL channels are clean, consistent, and be able to utilize various analytic methodologies such as,**

**marketing-mix analysis (MMx), next best action (NBA), AI/ML, econometrics for inferential models, prediction/simulation model designs, etc.**

- 2) **Adopt the following testing philosophy: test fast, fail fast.**

##### 3.1.3 Long-Term

- 1) **Forecast assessments on value of field-force versus other channels.**
- 2) **Reassess assumptions on the GTM strategy in light of coronavirus-era response policies that still remain in force.**
- 3) **Review all assumptions regarding the external environment facing pharma companies and their effects on sales, marketing, and managed markets/ market access strategy and operations.**

##### 3.1.4 Special Remarks on Incentive Compensation

Below are special remarks on IC. The reason for this special treatment on IC is because decisions need to be made immediately, the financial implications of IC payouts are significant, and IC payouts affect a significant portion of US headcount (typical of large pharma companies that have heavy investments in the sales force).

**Figure 1: COVID-19 Impact on Incentive Compensation Summary**

	SHORT-TERM	MEDIUM-TERM	LONG-TERM
<b>Plan Design</b>	Measure mid-qtr. performance for Q1'20 (for US). Pay better of performance vs target. At-target pay.	Think about brand forecast relief. Reduce the entry point on payout curve. MBO OR Indexed plans.	Leverage hybrid plans.
<b>Performance Measures</b>	Avoid traditional activity based metrics/call adherence etc. Only measure what reps can impact.	Avoid traditional activity based metrics/call adherence. Look at qualitative measures.	Align measurable KPIs with role responsibilities based on any operating model changes.
<b>Contests</b>	Shelf the contest OR reduce the contest period up to Feb'20.	Avoid any in-person detailing/activity based contest for next couple of quarters.	Assuming that COVID situation is under control. Leverage contests to drive engagement and back to in-person selling.
<b>Annual Trip</b>	Cancel the annual trip OR Option to cash out OR Postpone 2019 Year end award.	No action required.	Do a mid-year check-in for 2020 ranking with option to exclude impacted months. Look at alternate metrics for year end ranking.
<b>Goal/Target Setting</b>	No change on Q1'20 goals. Attainment based on Jan-Feb'20 (for US).	Think about brand forecast relief.	Longer baseline period for setting goals. Smooth out historical trends.
<b>Merit Reviews</b>	No action required.	Postpone merit evaluation to back half of 2020.	Exclude performance data for the impacted months.

Source: Axtria, Inc.

### 3.2 Concluding Remarks

The outbreak of the coronavirus illustrates the inherent risks and uncertainties that are prevalent in the operation of complex and global business, as seen in the pharmaceutical industry. By their very nature, “black swan” events are difficult to anticipate by a business. Much of this paper spent time identifying the potential effects in the US of the coronavirus on pharma companies. The coronavirus pandemic will have varying effects on pharma company strategy and operations. The extent of these effects and changes made by pharma companies will depend on the severity and length of the pandemic, and public policies enacted to combat this outbreak and prevent the next one.

The coronavirus pandemic also illustrates the need for companies to have empirical systems in place to act quickly to mitigate the effects of such events when they do occur. This means having detection systems that can quickly identify the existence of a problem, predict and measure the depth

of effects, and then estimate the effect of implementing management control policies to mitigate the business impacts from such “black swan” events. The existence of these analytic processes and systems is crucial for the long-term success and stability of a pharma company. Proper risk/uncertainty-mitigation controls in place, along with being prepared for the application of analytics to gather insight on the effects of such events, are essential to developing evidence-based countermeasures to minimize adverse impacts on business operations and to limit disruptions on patients and the healthcare system served by pharma companies. Axtria stands excellently positioned with the expertise and experience in developing strategic and tactical thinking, applying a wide range of solution-oriented analytics and technology-based platforms, executing commercial operations plans, and providing efficient data management systems to help pharma companies navigate through these challenging and uncertain times.

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