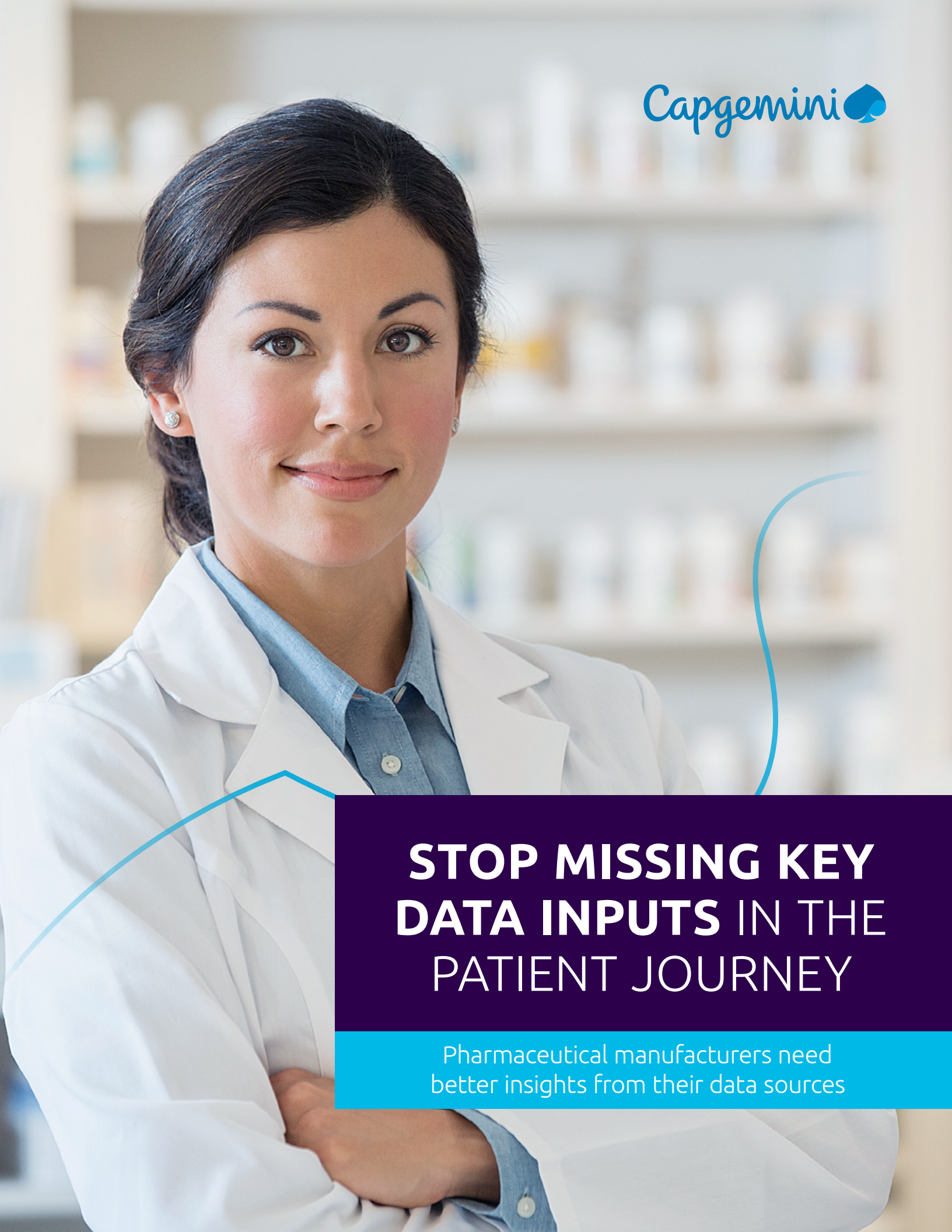


Capgemini

STOP MISSING KEY DATA INPUTS IN THE PATIENT JOURNEY

Pharmaceutical manufacturers need better insights from their data sources

Pharmaceutical brands distributed via retail pharmacies have lived in a world of readily available data for both owned and competing brands from major syndicated data vendors such as IQVIA and Symphony for years. However, in specialty pharmaceuticals, manufacturers have primarily relied on contracts with specialty pharmacies (SPs) to purchase dispense data and, more recently, status data.

While the SP data can give a patient-level picture of the overall specialty brand success, it can be partial and misleading without leveraging additional data sources and types. Pharmaceutical companies need to tap into additional resources to provide real data insights to make business decisions. Integrating additional data sources to assemble a more complete and accurate picture of the patient journey will create a competitive advantage for brands.

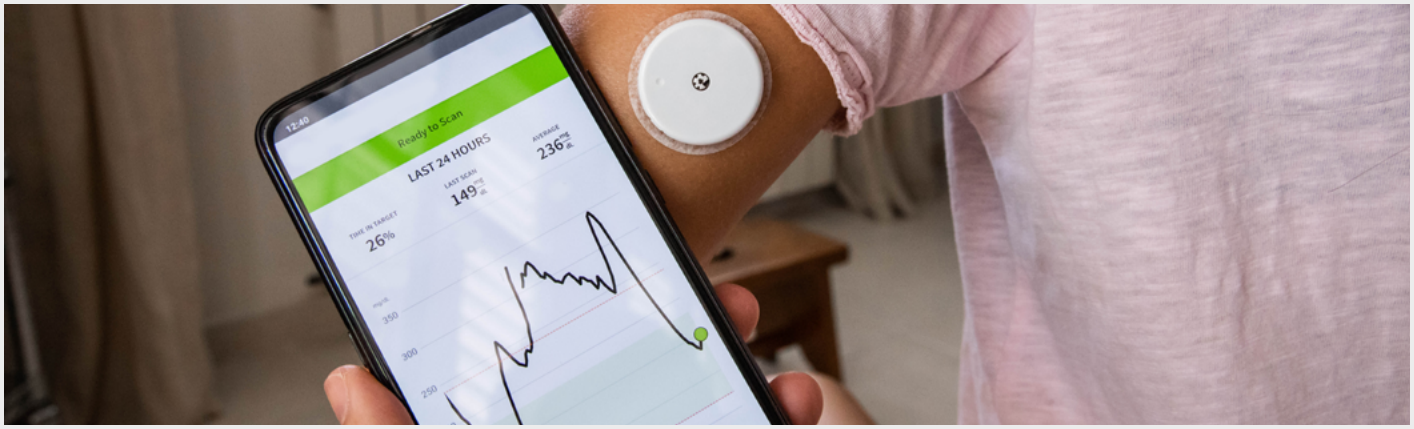
Moving beyond SP data

With core status and dispense data from the SPs, manufacturers can obtain a patient count as well as visibility into obstacles to getting on or staying on therapy through cancelations and discontinuations and the reasons behind the issues. However, in the absence of additional data sources and elements, the SP picture is not complete.

While some specialty pharmaceuticals are available from a tightly controlled, limited network of SPs, most brands are available at any specialty pharmacy of the prescriber's or patient's choice (subject to payer restrictions). However, manufacturers typically only contract with a limited subset of SPs to receive data. In the absence of other sources of data, there is limited visibility. Some manufacturers receive complementary data from SPs without a contract. Unfortunately, the data quality and completeness are often comparable to the price being paid. It is difficult, if not impossible, to get a SP providing free data to fix errors or omissions.

Data from contracted SPs can be misleading for a number of reasons but it ties back to a common factor: recognizing a single patient. If SP patients change their HIPAA consent to not consented or vice-versa, most SPs will change the shared patient identifiers to blind. Unfortunately, the manufacturer has no way of determining if the patient in previous reports is the same one. This can lead to over counting new and total active patients or, as the previous patient passes the point where they should have refilled, over counting discontinued patients. Similarly, if a patient changes SPs, there is typically no way of knowing if the new CVS Caremark patient was the same one last month at Accredo, for example.

The final potential area for errors is SPs occasionally fail to include one or more dispenses or include a returned or voided dispense. In the case of missing dispenses, it may appear in 30 or 60 days that patients have discontinued, even though they are happily continuing therapy.



Adding data for more robust insights

By adding in additional data sets from the same SPs, many misleading data issues can be minimized or avoided. New sources can eliminate data gaps and mistakes while providing additional value and insights to give a clearer picture of the entire patient journey.

Monthly dispense data

Typically, SP dispense data is provided weekly or daily. Simply adding a monthly file can help indicate any dispenses inadvertently omitted from the files. Minimal additional work is required from the SP if the monthly file is in the same format as the daily or weekly version, but someone at the manufacturer or their selected data aggregator will need to perform a SP reconciliation each month, however weeks and months rarely divide evenly when factoring them in. Any missing or added dispenses from the monthly report can then be discussed with the SP to have it either void the dispense from the weekly file (if it were returned or never shipped) or instruct the aggregator or manufacturer to add those dispenses skipped in the weekly files.

Inventory data

Detailed SP location-level inventory data may provide more insight into possible missing dispenses and the overall health of the distribution network. Receiving NDC and/or lot-level inventory including incoming stock, outgoing fills, returned stock, and ending inventory from each contracted SP monthly provides an additional check on missing dispenses. If the inventory shows 120 bottles were used, for example, but the SP dispenses only show 112 bottles, it raises questions about inventory miscounts or if eight dispenses are missing. Additionally, the information provides the manufacturer insights to the inventory levels being maintained to monitor possible stock concerns, pre-price adjustment inventory build-up, expiring lots, and other inventory-derived metrics. Finally, when combined with third-party logistics (3PL) and specialty distributor (SD) data, it now provides the ability to track inventory from sell-in by the manufacturer through the entire supply chain.

Extended SP services

Some contracts require SPs to perform additional services beyond processing prescriptions. SPs may dispense free goods or conduct routine patient follow-ups as part of an adherence program as well as other services. Manufacturers may not require SPs to provide data to document these services. To get a more complete vision of the patient's journey and the value of extended services, getting data on the number of calls or the free goods dispensed and other contracted services is a must to understand the value and impact. Combining this data with the status and dispense data means impact can be measured. For example, questions such as "Do patients enrolled in the adherence program show a lower discontinuation rate than those not in the program?" can be answered.

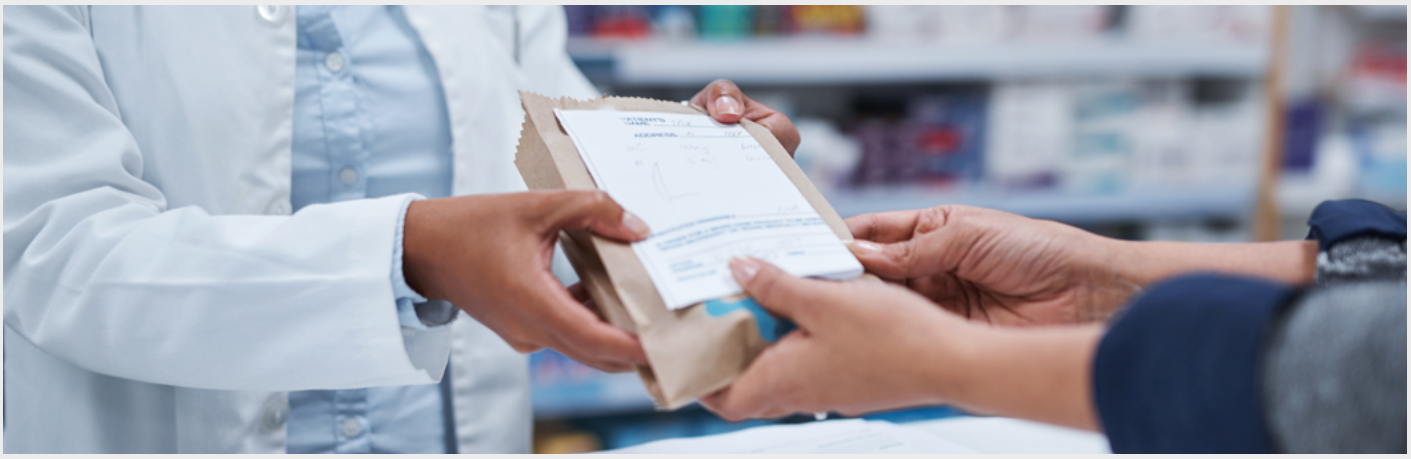
Patient mastering

Finally, a critical area to understand the patient count and tie many of the available data sources together is a full, properly HIPAA-certified patient mastering process. This is more than the simple matching process at an individual SP where operators are prompted to not create another "Fred Jones" because one already exists. This is a process where the patient's Personally Identifiable Information (PII) is used to master a patient across multiple data sources and sets. This process usually involves a third-party data aggregator separate from both the manufacturer and the data sources who, in turn, leverages an independent HIPAA-certified patient de-identification engine as part of their patient-mastering process.

At a data aggregator such as Capgemini, identified patient demographic information typically includes a source-specific identifier, patient first and last names, date of birth, gender, and address data that are run through a de-identification engine from Management Science Associates (MSA), Datavant, or Privacy Analytics, amongst others, to produce de-identified tokens that can be used as part of a larger patient-mastering process. The fully de-identified patient mastering data is combined with the transactional SP data as well as other sources to provide better insights. For example, it can now be established that a new patient at CVS Caremark is the same patient who went to Accredo last month.

Exchanges with a data aggregator containing PII and associated dedicated HIPAA-certified locations should be governed by appropriate legal documentation covering requirements and allowed usage. The Business Associate Agreement (BAA), Data Use Agreement (DUA), or other documentation required for PII data is largely dictated by the entity sending the data and their obligations, but the receiving company and the manufacturer contracting both would also weigh in.

By leveraging patient mastering, patients within a source and, more significantly, longitudinally across sources, can be tracked. This is critical to properly identify patient counts at each step of the journey and accurately determine the effectiveness of different programs such as copay, adherence, and nursing education.



Leveraging patient-services hubs

After SP data, the next-most-common data source is a patient-services hub. Most specialty drugs provide third-party patient services through hubs owned by industry leaders including the Lash Group (owned by AmerisourceBergen), Sonexus (owned by Cardinal Health), McKesson, and CoverMyMeds (owned by McKesson) to provide patient assistance to get on therapy. However, a recent manufacturer trend is to select more boutique or specialized hubs or to host hubs in-house. Core services contracted with almost all hubs include:

- Enrollment assistance
- Benefit investigation (BI) and benefit verification (BV), including electronic BV (eBV)
- Prior authorization (PA) and appeal, possibly including electronic PA (ePA)
- Triage to SP.

Additionally, hubs are often contracted to provide additional services, such as:

- Free goods dispensing through an in-house or directly associated SP
- Nursing
- Copay
- Adherence
- Clinical assistance
- Patient portals.

Most hubs provide manufacturers insights into operations through the analytics of a privately-hosted portal. While the data provides a view of the hub operations and whatever SP data the hub receives directly from the SP, it does not provide a full picture of what happens to the patients after they are triaged to the SPs. It also does not show any information about patients who were sent directly to an SP, bypassing the hub.

The optimum value of hub services data can only be realized when it is combined with SP data and the patients are mastered across both sources. Once the data sets are combined, the manufacturer can see insights that would otherwise be lost, such as:

- Patients triaged to one SP and then transferred by that SP to another SP
- Patients sent by the Health Care Provider (HCP) to both the hub and one or more SPs simultaneously
- Patients who have withdrawn or refused HIPAA consent so the SPs are not sharing data back to the hub
- Patients the SP was unable to service due to the patient not responding or being out of network and the prescription will be canceled if the hub does not resume servicing the patient.

Consuming hub data can be a challenging task and is generally left to third-party data aggregators because of their ability to master the patients and their familiarity with complex data models. Generally, each hub has its own data model corresponding with how their systems are setup and, depending on the contracted services, can have anywhere from a half dozen to more than 30 files or API messages.

By linking the patients between the SP and hub data sets, it is now possible to draw a complete hub patient flow from initial hub enrollment and registration and then follow the patient to each step at an SP, until the patient is active on therapy with a dispense. The hub patient flow can then be combined with the direct-to-SP patient flow to provide a complete view of patients if the brand has a limited distribution network and all of the brand's patients go through the hub or contracted SPs.

Master data

The value of master data cannot be understated. Patient mastering is critical. Virtually every patient-level data set will require patient mastering to connect all the data. There are two other mastering areas that are, perhaps, not as critical to understanding the data but are very important for clean, accurate and, most importantly, actionable reporting on the data.

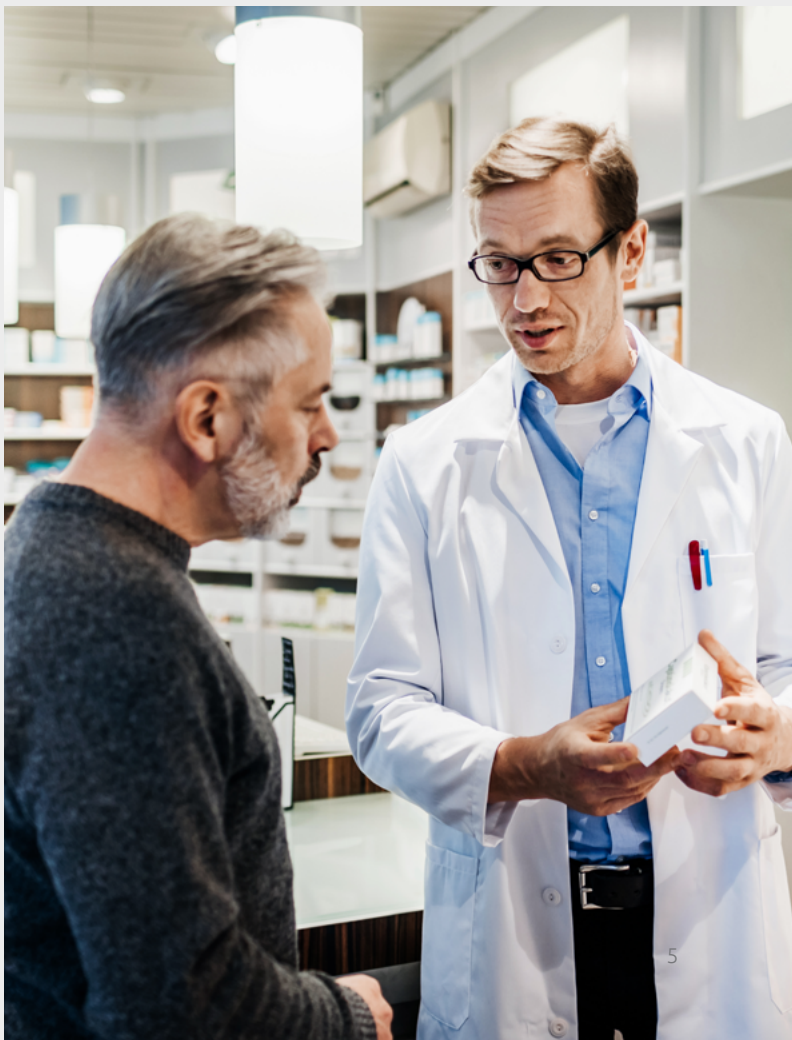
Prescriber

While there will always be jokes about poor handwriting by HCPs, there are still myriad problems with incorrect prescriber names, addresses, and identifiers such as NPI or DEA, even in the days of mainly electronic prescriptions. Even if everything is entered accurately, there are name variations such as Will, Bill, and William to complicate the data. Add in HCPs with the same names, often within the same area or even same medical practice – such as parent or child, secondary, or hospital office addresses – and the many challenges to getting an accurate count of prescribers becomes clear. In a world where many incentive compensation programs for sales are based on aligning a prescriber to a territory for a salesperson, prescriber accuracy can be very important.

Generally, manufacturers will purchase a third-party prescriber master data set from a company such as Veeva. When raw prescriber data comes in from a hub, SP, or any data source, it should have at least one accurate form of recognized identifier such as an NPI or DEA number. If so, mastering is simply a matter of passing those identifiers to the system and receiving the master version of the prescriber's first name, last name, and address.

In the absence of a valid identifier, prescriber mastering becomes more of a challenge and may require a third-party service or, potentially, manual data stewarding. In the regulated world of pharmaceuticals, there really are few valid arguments on why a data source which is providing HCP information cannot provide an accurate NPI or DEA number. It is recommended that the NPI number is both required and validated against the National Plan and Provider Enumeration System (NPPES) NPI registry. For controlled substances, a DEA number should also be required, and be validated at a minimum by using the built-in checksum.

Tying in with prescriber mastering is prescriber alignment. Often manufacturers will ask for the data to be aligned to one or more sales, reimbursement, or other field forces. Typically, this alignment data is provided along with the master prescriber data to account for any prescriber-specific overrides. After overrides are applied, it often relies on some version of a ZIP-to-territory alignment based on the ZIP code of the prescriber's master address.



Payer

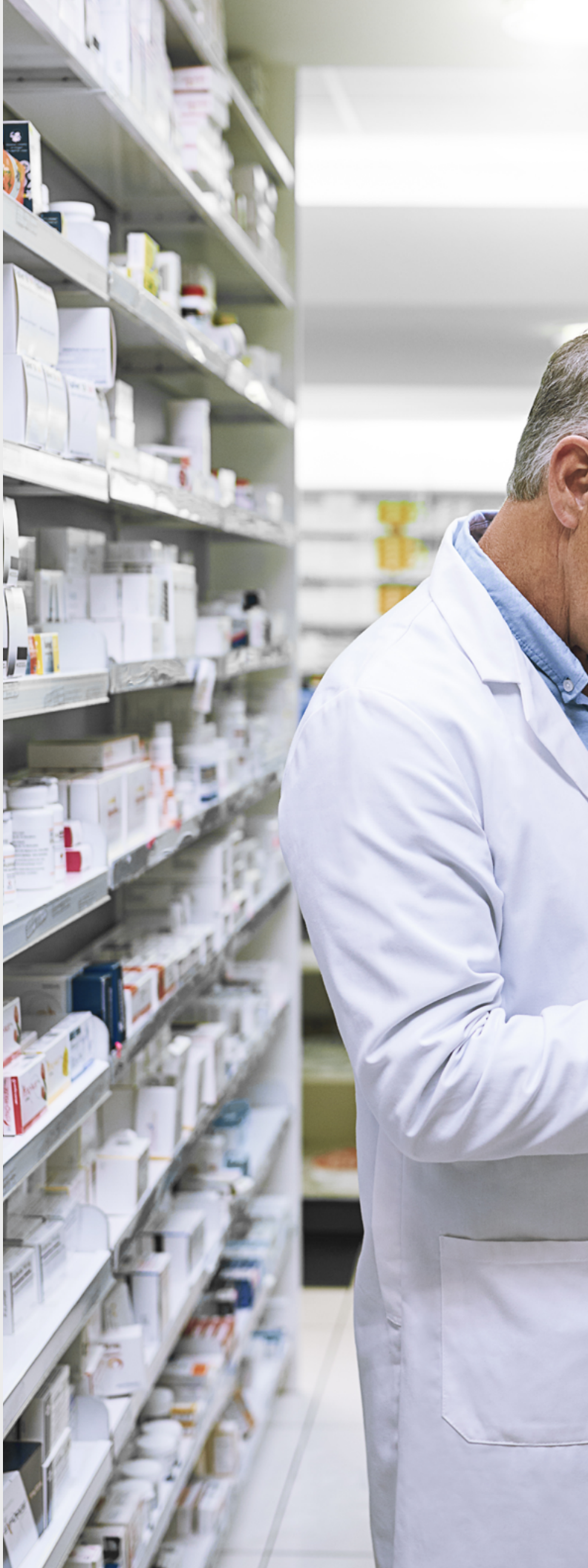
The typical quality of payer data is often compared to the wild west and is a bit of a free-for-all. For example, one program had 35 different variations of the name “Independence Blue Cross” for a single payer within the first six months of a new brand launch. More importantly, a number had the improper plan type reported. This could impact whether a patient is offered a copay card, which is not typically available on government insurance, and the ability of the manufacturer to accurately report brand revenue. If commercial insurances are inaccurately reported as government insurances or vice versa, the company's accrual estimates for Medicare and Medicaid would be wrong. This could result in incorrect revenue reporting if the actual accrual numbers were different.

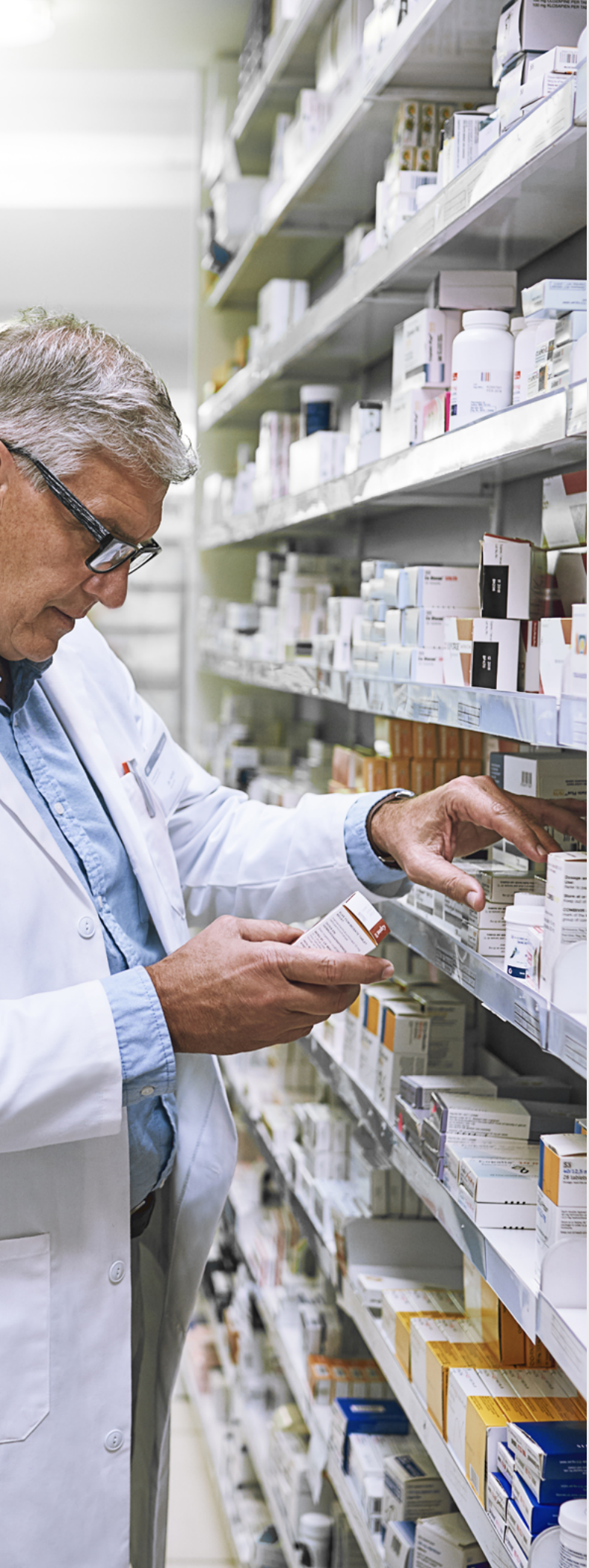
The recommendation is to consider a third-party payer mastering service with a payer spine from a company such as DRG or Symphony. In that scenario, raw payer data received from sources is sent to the payer mastering service, and a gold standard payer record is returned. Regardless of the sources submitted for payer name, plan type, and other payer fields, the accurate standardized data from the payer master is used for all downstream reporting.

Copay

With patient, prescriber, and payer mastering in place, it is easier for a manufacturer to have accurate patient counts and actionable insights into top prescribers and payers, and payers requiring or denying prior authorizations. However, that picture is only complete if the distribution model was a limited network and all patients had to go through the services hub and contracted SPs. When there is a non-mandatory hub and/or an open SP network, it is impossible to get a 100 percent view of all patients.

Additional sources of data can help fill-in some holes in patient-level data on an open distribution model and can provide additional insights even on a limited distribution network. For example, copay data can be useful. Usually with a new brand launch, copay programs are amongst the largest cost items. Yet many manufacturers get limited copay data and rarely combine it with status and SP dispense data and the patient-services hub. Not only is it impossible to independently determine the effectiveness of a copay program, but manufacturers are giving up vital insights to patients outside contracted data providers.





Additional dispensed patients

Copay data can provide dispense-level insights to patients outside the contracted SP network. It may not be as reliable as true dispense data directly from the dispensing SP but if a patient has an adjudicated, non-reversed claim, that is generally indicative of a patient on active therapy. Copay contracts should require the vendor collect as much detail on the dispense as reasonably possible, including date, prescriber, dispensing SP, and primary payer information. Business rules can then be developed between the manufacturer and their data aggregator to best leverage the copay claims data.

If the copay vendor can provide patient demographic data, and it matches the values coming from other sources, patient mastered copay data can be leveraged to track patients across sources. If a patient was dispensing at a contracted pharmacy and suddenly disappeared, the person may be considered discontinued. However, if that same patient is continuing to submit copay claims and the dispensing pharmacy is shown as a non-contracted pharmacy, perhaps the patient should be left as active. Manufacturers should review use-cases and establish specific business rules to support their needs.

Cancelation and discontinuation analysis

If SP status data indicates a significant number of patients cancel or discontinue therapy due to cost, patient mastering and copay enrollment data can be used to direct SPs or hubs to reach out to encourage them to try again and leverage the copay program. It is fairly typical to have many patients enrolled in copay, but only a small percentage actually submitting claims. Additionally, if earlier on the journey it is seen that certain prescribers are not recommending copay or have large numbers of patients not utilizing the copay program, the manufacturer's field staff can engage with HCPs to discuss the options and hopefully prevent a cost-related cancelation or discontinuation. Finally, for large patient populations and large copay programs with different types of offerings, it may be possible to draw conclusions on the relative success of each copay offering based on the cancelations, discontinuations, and adherence seen under each program.

Dispense reconciliation against adjudicated claims

Even though they cost manufacturers millions of dollars per year, copay programs are most often siloed. They are rarely reconciled against other sources of data to confirm the claims dispensed. Leveraging patient mastering makes it possible to match copay claims for a patient against contracted SP dispense data. But experience shows it will never match perfectly. The copay vendor or SP could have different patient demographics so the patients will not master together. Additionally, claim dates from copay data and SP dispense dates will not always match. Generally, they will fall into the same week, but dispenses can be voided and claims can be reversed, so achieving a 100 percent match is rare. That said, if a trend of claims not matching dispenses is seen over time, it may be worth a discussion with the SP and copay vendor.

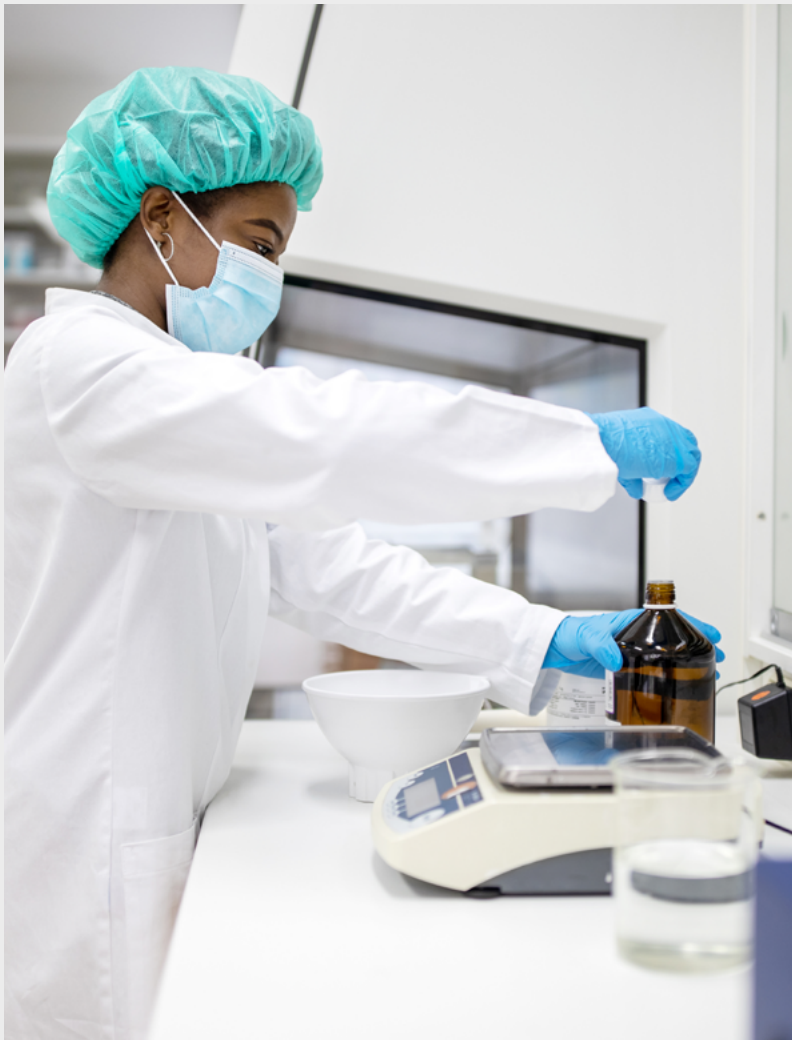
Nursing and adherence

Two related sources on the patient journey, as well as potential views into non-contracted SPs, are nursing and adherence programs. While they are often performed by different entities – nursing programs involving patient engagement by HCPs and adherence programs most often performed by the hub customer-service agents or third-party adherence companies – they can provide similar insights into the patient journey.

Nursing programs can be simple lines for incoming and outgoing calls to patients or through nurse educators and/or direct-to-patient training and administration of therapy. If patient demographic data is available, it is possible to combine this with SP, hub, and copay data to get a more complete picture of the patient journey. Additionally, it may be appropriate for those patients dispensed from contracted SPs to even use dispense based triggers for nursing calls or visits. For those patients being dispensed from non-contracted pharmacies, the presence of a post-dispense nursing call or visit can be used as another indicator that a patient is remaining active on therapy despite dispense data not coming in from an SP.

For adherence programs, each time the customer-service technician speaks with the patient or caregiver is another opportunity to determine if the patient is active. Manually collected data is not as reliable as direct dispense SP data, but it will still help to indicate if a patient is continuing therapy.

Similar to the cancelation and discontinuation analysis for copay patients, with patient mastered data from nursing and adherence programs, it is possible with sufficient patient counts both on and off the programs to measure the effectiveness of nursing and adherence programs. Typically, there are no discontinuation reasons associated with nursing or adherence but, with a sufficient patient population, if the relative discontinuation rates are compared for patients on the nursing and adherence programs to those not using the programs, conclusions can be drawn on the effectiveness of each.



Tapping into Risk Evaluation and Mitigation Strategies

If the FDA requires a manufacturer to implement a Risk Evaluation and Mitigation Strategies (REMS) program, it can be a costly and challenging requirement. REMS programs can require steps be taken by any combination of the prescriber, dispensing pharmacy, and/or patient prior to or, in certain cases, following a drug being dispensed. If REMS data is combined with the other sources, it can be an invaluable source of information.

Prescriber REMS

If the dictated REMS program requires a prescriber register such as a need for specialized injection training, bringing in that prescriber detail from the REMS provider offers two areas of insight.

Prescriber interest

If a prescriber is registering for the REMS program and interested in receiving the training or allowance to write prescriptions, it is generally indicative that the person is interested in the brand and may be worth the field teams engaging to provide literature, prescription, or copay support.

REMS compliance

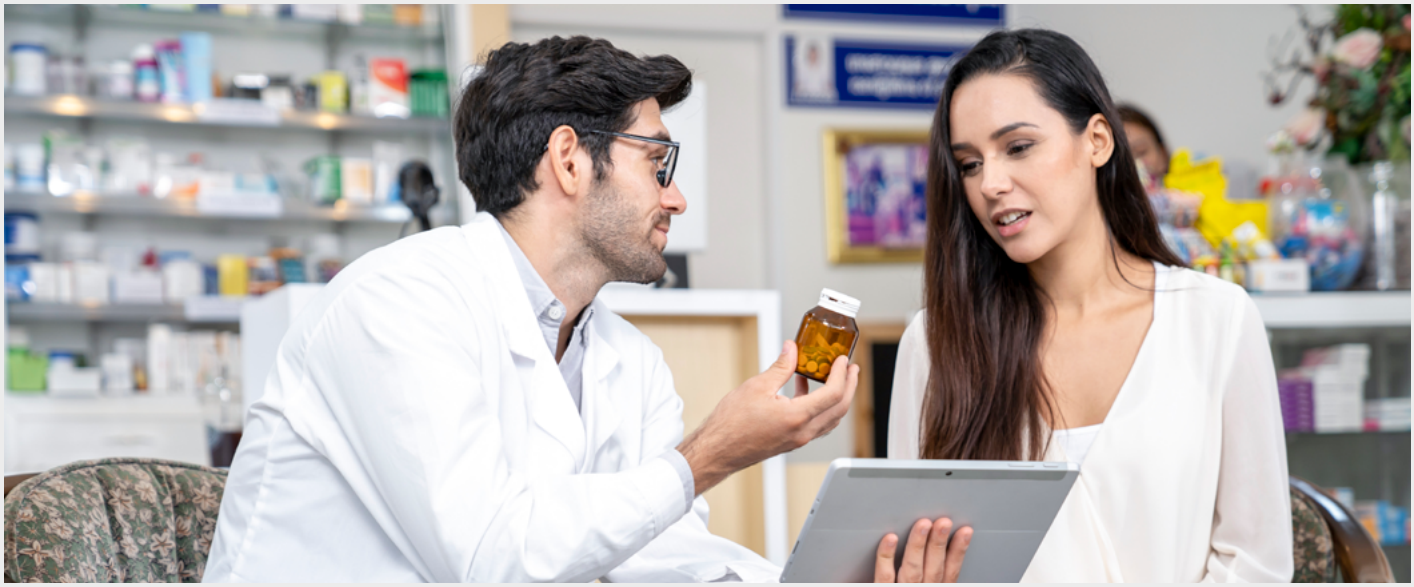
By receiving prescriber REMS information, when new referrals are received either from SPs directly or from the hub, the information can be reconciled against the REMS registry to assure all prescribers have met the requirements. If not, the information can be used to trigger outreach to drive registration prior to dispensing the drug to avoid a REMS violation.

Patient REMS

If the dictated REMS program requires a patient-level registry for items such as education around black-box warnings, bringing in the demographic detail from the REMS provider allows subsequent data from the SPs and hub to be mastered together to assure the patient has met the REMS requirements prior to the drug being dispensed.

Pharmacy REMS

If the dictated REMS program requires a pharmacy registration prior to dispensing the drug, bringing in that demographic detail from the REMS provider allows subsequent SPs and copay data to indicate if the SP has met the REMS requirements prior to dispensing. Not every registered SP will be sharing dispense data so the REMS data is not as valuable in assuring SPs have met the registry requirements prior to dispense. Another alternative at the SP-level is to instruct third-party logistics companies and specialty distributors to only ship to REMS-registered pharmacies and to use their product transfer and resale data to reconcile against the SP REMS data.



Harnessing data in the distribution ecosystem

Third-party logistics (3PL) and Specialty Distributors (SD) are responsible for distributing drugs from the manufacturer downstream. Most often used by smaller pharmaceutical companies, 3PLs actually transfer title, meaning they purchase the drug from the manufacturer and sell it out to SDs. SDs subsequently sell the drugs to SPs and large medical groups such as hospitals and Integrated Delivery Networks (IDNs).

3PL and SD data most often come via electronic data interchange (EDI). While there are a significant number of EDI standards, the two most common for this conversation are the 867 Product Transfer and Resale Report and the 852 Product Activity Report. In simplest terms, the 867 reports sales/transfer/return of the product between the 3PL/SD and a hospital or SP while the 852 reports inventory at the 3PL/SD.

Since 3PLs and SDs do not deal with data at the patient level, many manufacturers do not incorporate their information in aggregated patient data. It is most often kept separate and used for financial reconciliation. But it means companies are missing a valuable source of insights.

Distribution network reconciliation

Sales and inventory data from the 3PL/SD can be combined with a feed of sell-in data from the enterprise finance system to complete the distribution picture. Combining it with SP inventory data means it is now possible to see the lots being sold out of the enterprise finance system to the 3PL, from the 3PL to the SD, and from the SD to the SP.

Downstream inventory estimation

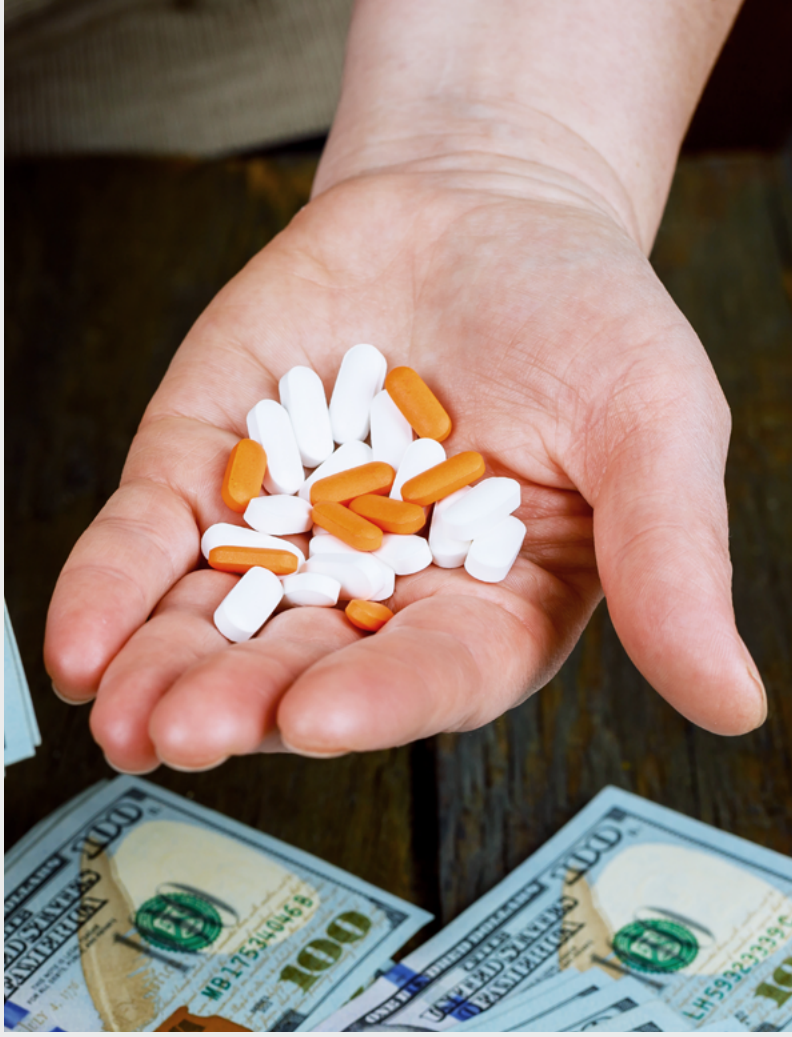
Financial liabilities associated with product distribution still remain a gap within the broader channel data partner network. Manufacturers have access to inventory data sourced from contracted SPs, which is typically part of the data service fee agreements. However, inventory can only be tabulated for SPs in their contracted data network. Any other downstream customers holding and dispensing inventory will not be included, which creates a significant gap in financial reporting.

Industry best practice leverages EDI 867 data to help carve out the non-reported distribution networks. Using a combination of primary market research (inventory surveys) and sales/dispense trend reconciliation, it is possible for manufacturers to adopt a data-driven approach to inventory estimation for non-reporting channel partners. This method is readily accepted by external audit teams and results in a more accurate balance sheet.

340B program utilization and duplicate discounting

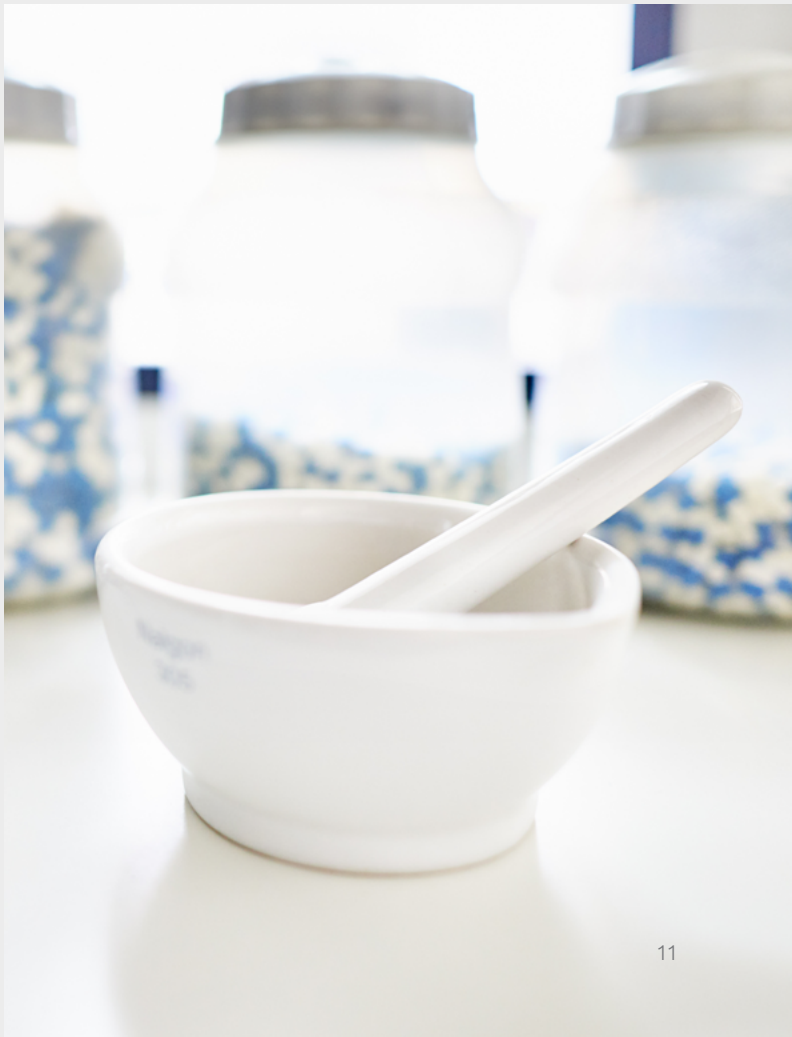
As pharmacy benefit managers (PBMs) grow their distribution arm and leverage product purchased through the federal government 340B program, there is growing concern within the manufacturer community around revenue leakage associated with duplicate discounting. EDI 844 (contracted sales) and EDI 867 (product distribution) data are most commonly used to identify the share of each downstream customer's 340B purchases as a percent of total volume. When 90-plus percent of an entity's product is purchased through the 340B program, it will be imperative for manufacturers to look into the location of the entity and tie in socio-economic and claims data to ensure it makes sense to have such significant 340B utilization and commercial claim submissions.

Often, when commercial rebate and 340B volumes are tied in with total purchases at a utilization-level site, the data suggests a high degree of duplicate discounting as a result of the manufacturer paying a 340B rebate and a commercial rebate on the same product unit. Using a data-based approach allows manufacturers to automate this process to a higher degree, resulting in increased overall product profitability.



Hospital and IDN visibility

The product being distributed to hospitals or IDNs can be used to indicate what percentage of the patients are receiving therapy in the areas that can create black holes for data. Do not assume all quantities being distributed are going to patients immediately as stock is purchased. For brands that have a significant hospital or IDN distribution, there are several manufacturers starting to contract with larger hospitals and IDNs to provide patient-level data similar to SPs. The data may be more limited in completeness due to limits on data sharing for in-patients. Even in the absence of direct hospital or IDN data feeds, the 3PL/SD data can provide hospital-level and, occasionally, finer granularity. For example, some hospitals have multiple delivery points, and the data can be broken down to specific building or floor levels.




HEALTH INSURANCE
Personal Information
Firstname

Looking beyond traditional data sources

Specialty pharmaceuticals continue to be the fastest-growing class of medications in the US, accounting for 90 percent of the 2021 top sellers. As a result, some sources estimate that the US healthcare system generates approximately a zettabyte (one trillion gigabytes) of patient data annually as patients move through the ecosystem of care. And data will continue to increase annually. The volume, variability, velocity, and distributed nature of this data presents a significant challenge to understand how patients are performing across their treatment journey. Yet as the scope of this challenge keeps increasing, so does the potential value inherent in this data to understand how patients respond to therapy, outcomes, and centricity of care.

As specialty pharmaceuticals growth accelerates, the additional data sources are also expanding. The existing sources can build a strong foundation but there are other options to gain additional insights. Here is a quick overview of some of the other options.

CRM data

A growing trend incorporates data from the field teams' CRM systems, including call data and updated prescriber contact/affiliation information. This can be tied to prescription data from those prescribers to assess the impact of the number of calls on prescriptions and to feed updated prescriber data to the MDM or sales operations teams for stewarding. Likewise, feeds of prescription and patient counts as well as updated prescriber contact information back out to CRM can be of value for the field.

Non-drug dispenses

Dispenses such as infusion and welcome kits and sharps containers can indicate if a patient is still on therapy. Additionally, some of these events, such as dispensing a welcome kit, can be used to trigger downstream events such as a nurse visit or call.

Marketing/prospects/targets

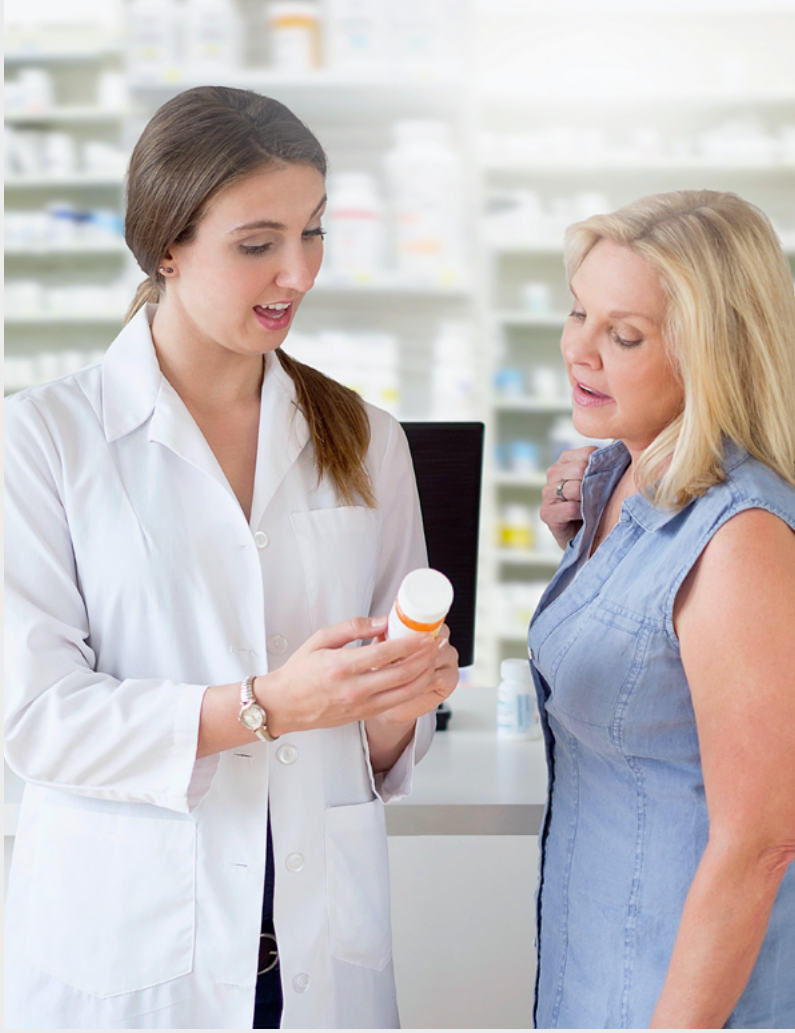
Marketing campaigns, prospective targets, and cohort data can be tied to prescriber data for flagging, sorting, and reporting. The impact of marketing campaigns may be determined by relative prescriptions counts at the prescriber level. Additionally, prescriber target, Key Opinion Leader (KOL), and similar flags can be used to aid in reporting and can be brought into master data or the CRM system.

Lab data

A recent trend is bringing some aspects of patient-level lab data into reporting, based on lab results or tests. Proper care needs to be exercised when it comes to bringing in actual medical results to assure patient privacy is properly protected, but it is rare that the raw results are needed or wanted. Typically, a Y/N flag when a particular test was performed and possibly a pass/fail-type result is sufficient granularity for most reports.

Web/portal/app

Web and app usage is increasing. For brands with dedicated apps such as tracking infusions or medication doses, detailed patient-level data can be used to measure the impact of the app against patient adherence. For web pages and portals, there is an opportunity for usage data and pushing patient-facing data back out generally through a mapping layer to put things in marketing-approved terms for the patients.

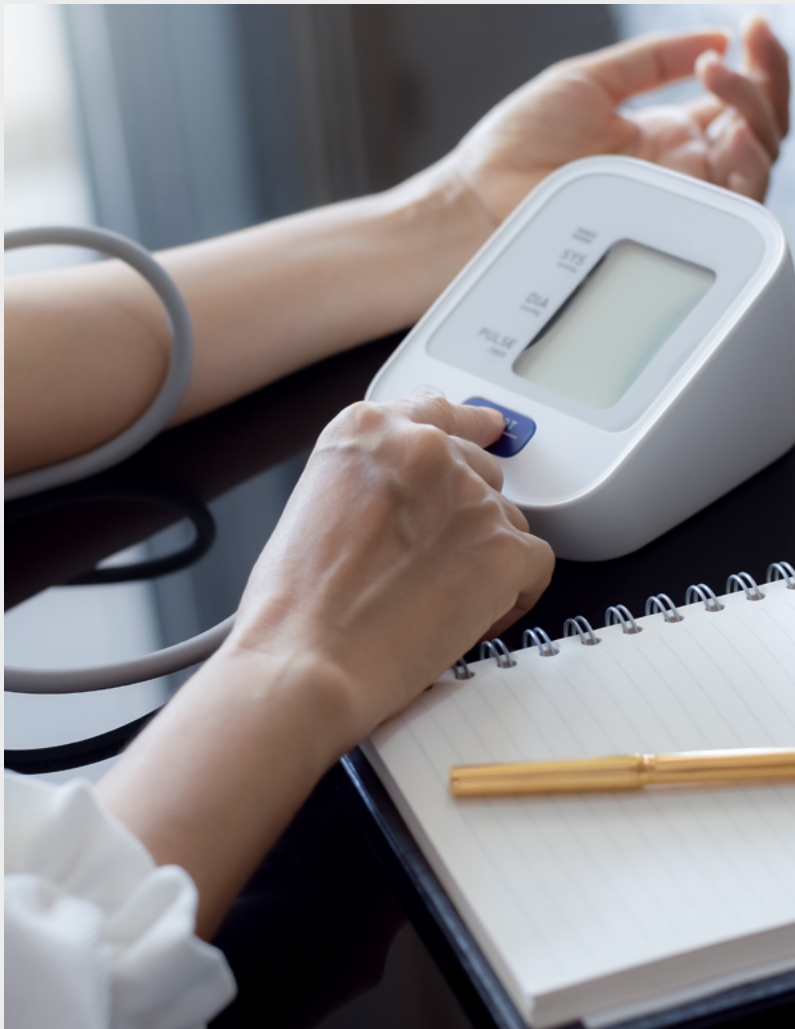


EMR/EHR data

The terms electronic medical record (EMR) and electronic health record (EHR) are often used interchangeably. However, an EMR and an EHR serve much different purposes, despite sharing certain characteristics. Understanding EMR versus EHR is important to the success of technology investments and insights into your patients' journey.

Both an EMR and EHR are digital records of patient health information. An EMR is a digital version of a patient's chart. It contains the patient's medical and treatment history from one practice. Usually, this digital record stays in the doctor's office and does not get shared. If a patient switches doctors, their EMR is unlikely to follow.

By contrast, an EHR contains the records from multiple doctors and provides a more holistic, long-term view of a patient's health. It includes demographics, test results, medical history, history of present illness (HPI), and medications. But to go beyond basic clinical data and focus on the total health of each patient, EHR data when de-identified and integrated with other data sets provides better patient-centric insights into the journey from diagnosis to completing therapy.



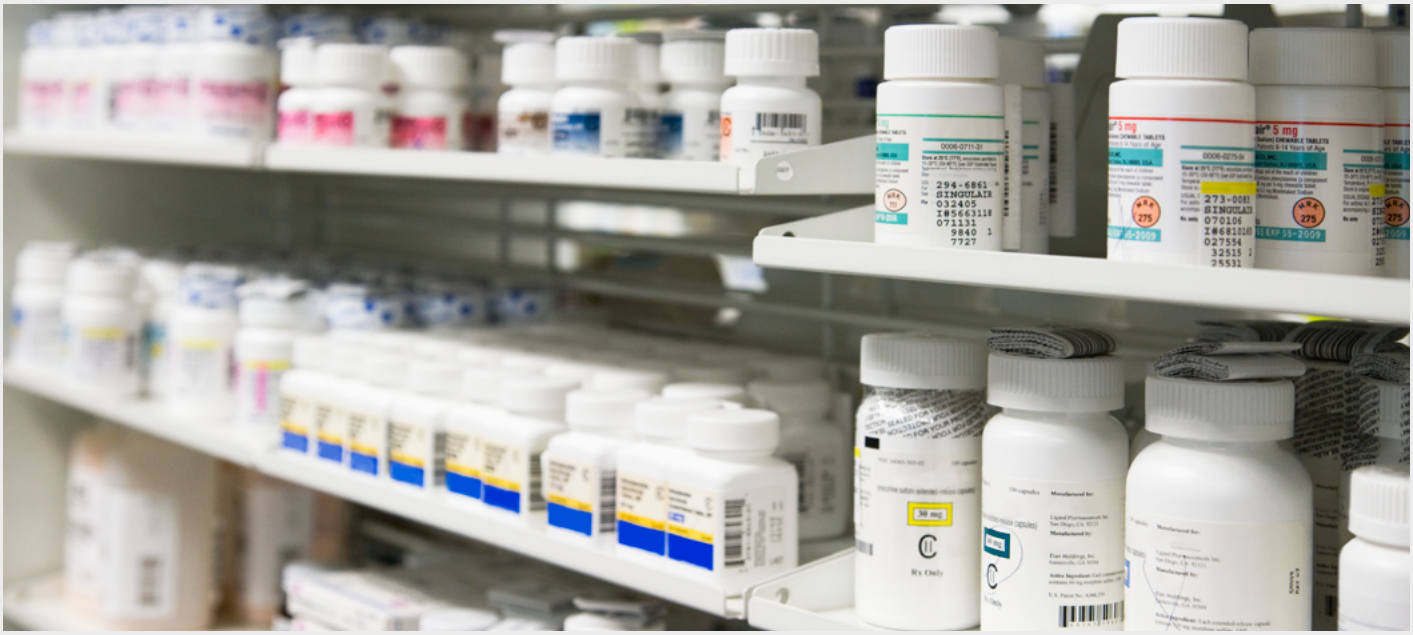
Social Determinants of Health (SDOH)

Social Determinants of Health (SDOH) are those social and behavioral aspects of our environment that affect a wide range of health, functional interactions with our healthcare ecosystem, and quality-of-life outcomes and risks. SDOH can be grouped into five key categories: economic stability, education access and quality, healthcare access and quality, neighborhood, and social communities.

SDOH have a major impact on people's health, well-being, and quality of life. Examples of SDOH include:

- Safe housing, transportation, and neighborhoods
- Racism, discrimination, and violence
- Education, job opportunities, and income
- Access to nutritious foods and opportunities for physical activity
- Polluted air and water
- Language and literacy skills.

Manufacturers are attuned to obstacles to initiating therapy and maintaining adherence, given the high cost of many specialty drugs and the potentially catastrophic consequences of non-compliance or non-adherence for complex patients. Capgemini is seeing more requests to integrate de-identified SDOH data into patient journeys and looking at the multivariate interactions that can be addressed to assist patients to preserve and enhance outcomes on therapy.



Mining data sources for success

Every specialty pharmaceutical brand and manufacturer is different, but a common thread is the vast majority are not leveraging all the data available to achieve the maximum insights on their patients. There is a wide array of data sets and sources that can be harnessed to become more data-driven. Capgemini works with manufacturers to unlock the value of data and technology to gain a competitive advantage. We can help you use data to better understand the patient journey and get the future you want.

For more information, please contact:

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About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 290,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of $19.3 billion.

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Note: current conversion is €1 to $1.20 (2/17/21)

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